

memorandum

Ohio Field Office
Miamisburg Closure Project

DATE: JAN 29 2003

REPLY TO: MEMP:SMILEY MB-0133-03

ATTN OF:

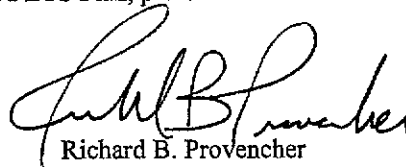
SUBJECT: Long-Term Stewardship Plan for the Miamisburg Closure Project

TO: Jack R. Craig, Acting Manager

I am pleased to provide you with the attached "Long-Term Stewardship (LTS) Plan for the USDOE Miamisburg Closure Project (MCP)," Revision 0, dated January 28, 2003. The attached document was prepared in accordance with the memorandum from the Assistant Secretary for Environmental Management (EM-1) dated August 29, 2002, entitled "Long-Term Stewardship Planning Guidance for Closure Sites." As you know, that memo required all Closure Sites to provide a LTS Plan to EM-1 by January 31, 2003. The memo further directed each site to prepare the LTS Plan with input from stakeholders and regulators.

The DOE-MCP has been refining the attached document since late CY2001, and provided drafts of the LTS Plan to regulators and stakeholders in February, May, August and December of 2002. The attached document incorporates all comments received from the regulators and stakeholders throughout the past 12 months. Stakeholders consulted during the development of the LTS Plan include, among others, the City of Miamisburg, the Mound Reuse Committee (MRC) and the Miamisburg Mound Community Improvement Corporation (MMCIC).

If you have any questions on the attached LTS Plan, please contact Ms. Sue Smiley of my staff at (937) 865-3984.



Richard B. Provencher
Director

Attachment

cc w/att:
David Geiser, EM-51
Sally Robison, EM-31

Long-Term Stewardship Plan

for the

U.S. Department of Energy

Miamisburg Closure Project



Revision 0

January 28, 2003

FOREWORD

During the past decade, the U.S. Department of Energy (DOE) has made significant progress in addressing the environmental legacy of the Cold War. At many sites, it has reduced the risks and costs associated with maintaining protective conditions across the DOE complex. In spite of that effort, the majority of DOE sites will not be cleaned up to the point where they can be released for unrestricted use. The term “unrestricted use” generally means that conditions are safe for any exposure scenario, including residential use, subsistence farming and subsistence fishing; however, it does not necessarily imply cleanup to pristine or background conditions. Factors such as technical infeasibility, excessive worker risk or environmental damage, programmatic priorities and costs dictate the extent to which DOE sites are undergoing remediation and the consequent end-states achieved. When cleanup is completed, most DOE sites will require some level of Long-Term stewardship (LTS) to ensure protection of human health and the environment from hazards that remain after the cleanup is complete.

As defined in the DOE “Long-Term Stewardship Planning Guidance for Closure Sites (issued August 29, 2002,) the term “cleanup” refers to the process of addressing contaminated land, waters, facilities, and materials in accordance with applicable requirements. This refers not only to actions taken under CERCLA and RCRA, but also to the decontamination and decommissioning process and the low-level waste or other radioactive waste and disposal process. Cleanup does not imply that all hazards will be removed from the site. The term “remediation” is often used synonymously with cleanup. Cleanup/remediation is considered complete when deactivation or decommissioning of all facilities is complete, excluding long-term surveillance and monitoring; releases to the environment have been cleaned up in accordance with agreed-upon standards; groundwater contamination has been contained, or long-term treatment or monitoring is in place; nuclear materials and spent fuel have been stabilized and/or placed in safe long-term storage; and “legacy” wastes (i.e., produced by past nuclear weapons production activities, with the exception of high-level waste) have been disposed of in an approved manner.

The DOE “Long Term Stewardship Planning Guidance for Closure Sites,” defines the term “Long-term stewardship” as those activities necessary to ensure protection of human health and the environment following completion of cleanup, disposal or stabilization at a site or portion of site. Long-term stewardship includes all engineered and institutional controls designed to contain, or to prevent exposures to, residual contamination and waste. Examples include surveillance activities, record-keeping activities, inspections, groundwater monitoring, ongoing pump and treat activities, landfill cap repair, maintenance of entombed buildings or facilities, maintenance of other barriers and contained structures, access control and posting signs.

The Department’s efforts to accelerate closure of sites places a greater emphasis on working with affected governmental organizations, stakeholders and Tribal Nations to ensure that an adequate plan is in place prior to completion of the cleanup. Such a planning effort improves the DOE understanding of the LTS scope and establishes the infrastructure requirements needed to manage the program. As defined in the DOE “Long Term Stewardship Planning Guidance for Closure Sites,” the term “closure” is the point at which the following objectives are met and verified for DOE Environmental Management (EM) activities: (1) Environmental remediation is complete, per regulatory requirements; (2) Waste management activities have ceased and material has been dispositioned; (3) Real property is removed, disposed of, or transferred; (4) Personal property is removed, disposed of, or transferred; (5) Long-term stewardship plans are developed and approved; (6) Contracts are terminated or transferred; and (7) Workforce is terminated or transferred.

The DOE Closure Sites' LTS Plans should be built using the DOE seven principles and with input from affected governmental organizations, stakeholders and Tribal Nations. The plans should be developed prior to site closure, with emphasis on allowing adequate up-front planning and involvement by all interested parties prior to entering LTS. The LTS Plans should be updated periodically to reflect significant changes in the site's stewardship approach, and should be finalized and approved by the appropriate authorities, including DOE management, regulators and others, as needed.

As stated in the DOE "Long-Term Stewardship Planning Guidance for Closure Sites," each Closure Site's LTS Plan will be unique. The plans will vary based on site-specific conditions, local community, stakeholder, government and Tribal Nation concerns, and requirements resulting from the site end state. The DOE guidance provides the framework and minimum requirements for a LTS Plan. Closure sites should use the guidance as a starting template to construct a site-specific plan. The guidance is designed to formulate a baseline that can be used to communicate information to future stewards, and provide the basis for stewardship costs. It is anticipated that more detailed information will be found in other documents and will be referenced in the LTS Plan (i.e., in lieu of repeating information in the LTS Plan that is otherwise available to the public [e.g., in published CERCLA documents]).

The DOE released the second draft of its LTS Strategic Plan in July 2002. The Mission, Vision, Goals and Principles provided below are drawn from that draft document.

Mission: To protect human health and the environment from risks that remain following cleanup.

Vision: Environmental and public health liabilities are reduced and land is returned to beneficial use consistent with the DOE mission requirements. This long-term stewardship vision will be demonstrated when:

the effects of residual contamination are minimized by effective monitoring and maintenance measures; the Department has achieved public trust through cooperative partnerships with stakeholders, state, local and Tribal governments; long term stewardship principles are fully integrated into the DOE planning and operations; and, the vitality of human, natural and cultural resources for current and future generations is sustained.

Goals:

Goal 1. *Post-remediation responsibility and liability is effectively managed.* This goal recognizes that the Department is already conducting long-term stewardship at many sites across the Nation, and focuses on supporting the continued execution of these responsibilities.

Goal 2. *Long-term Stewardship responsibilities are understood and built into the way the Department does business.* This second goal ties the success of the DOE long-term stewardship effort to its ability to improve existing planning and management processes.

Goal 3. *The capability and tools are in place to ensure the effectiveness of long-term stewardship for current and future generations.* This goal articulates the DOE inter-generational approach to ensuring the continuing protectiveness of environmental remedies, assuring the availability of adequate resources, and utilizing developments in information management and advances in science and technology. Understanding of the continuing and iterative nature of long-term stewardship and the promotion of the DOE partnerships with State, local and Tribal

governments and stakeholders, is fundamental to the success of this effort.

Principles:

1) Long-term Stewardship is a Department-wide responsibility.

As a whole, the Department is committed to the protection of human health and the environment in all of its actions. To ensure success, all Departmental elements must consider long-term stewardship as an integral part of the DOE mission.

2) Long-term Stewardship is a component of all aspects of Departmental decision making.

It is the responsibility of sites and Headquarters offices to ensure that long-term stewardship is considered in each decision that impacts DOE cleanup. This responsibility extends from the identification of remediation alternatives, remedial design, construction and operation, and through all relevant decisions made over the lifetime of the hazards.

3) The Department is a Trustee of natural and cultural resources.

Residual hazards should be managed within the larger context of Federal land management, which includes trusteeship for ecologically and culturally important areas. The Department will manage these hazards in accordance with applicable regulatory requirements.

4) Long-term Stewardship should be incorporated into relevant Departmental policies, practices and systems.

Long-term stewardship will be most effective when integrated into existing Departmental processes and management systems. As these DOE policies, practices, and systems (such as Life Cycle Asset Management, Integrated Safety Management and Environmental Management Systems) are reviewed and/or implemented, a broad range of long-term stewardship activities and needs may be incorporated. This will facilitate the establishment of long-term stewardship as an essential element of all facets of Departmental missions.

5) An inter-generational approach is needed for Long-term Stewardship.

Long-term stewardship is an enduring commitment by the Federal Government. Due to the longevity of hazards, the ramifications and costs of current and future decisions and missions will be experienced by generations to come. As these generations' land use practices and local community structures change over time, current assumptions that guide Departmental policy may require reevaluation and modification.

6) Long-term Stewardship policy must provide a consistent framework and acknowledge sites' need for flexibility.

Although a consistent framework for long-term stewardship is required for complex-wide management, DOE Headquarters and sites must be responsive to site-specific requirements (local, Tribal, state, regional and federal). Therefore, Departmental long-term stewardship policy must be sufficiently flexible to enable sites to perform necessary long-term stewardship functions within their individual regulatory frameworks and communities.

7) The involvement of stakeholders and state, local, and Tribal governments is critical to Long-term Stewardship.

The Department has the responsibility to consult with these affected parties on long-term stewardship issues. Ongoing interaction and exchange increase public awareness. In turn, heightened public awareness facilitates informed decision-making and increases the likelihood of successful implementation of long-term stewardship.

Readers of the following LTS Plan, for the DOE Miamisburg Closure Project (MCP), should be aware that DOE (Headquarters) is still in the process of addressing all of the comments received on the July 2002 draft LTS Strategic Plan. Therefore, the above text, taken from the July 2002 draft LTS Strategic Plan, is subject to change. Nonetheless, the above information does set the stage for the DOE LTS planning efforts to-date, and the MCP Long-Term Stewardship Plan that follows this Foreword.

LTS planning at the DOE Closure Sites, such as the MCP, is particularly time-critical. Consistent with the DOE “Long Term Stewardship Planning Guidance for Closure Sites,” the following LTS Plan for the MCP is organized by ten critical elements. This LTS Plan is meant to be a “living” document that can, and should, be refined by the DOE as the MCP draws closer to site closure. The process for updating this LTS Plan is described in Section 1.3 of this document. All Closure Sites must provide an initial LTS Plan to the Assistant Secretary for Environmental Management (EM-1) by January 31, 2003, and must also issue periodic updates to the LTS Plan as new information emerges. Accordingly, the DOE-MCP has already established an internal milestone to issue an update to this January 2003 LTS at the end of a 12-month period (i.e., January 2004 time frame).

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- Exhibit 1: December 13, 1993 letter from the City of Miamisburg to the OEPA
- Exhibit 2: Site Map of the “1998 Mound Plant Property”
- Exhibit 3: Legal Description of the “1998 Mound Plant Property”
- Exhibit 4: Sample Check-list for Review of Effectiveness of Institutional Controls
- Exhibit 5: Mound Reuse Committee [MRC] Charter, Scope & Responsibilities, and Interim Land Use Policy
- Exhibit 6: City of Miamisburg I-2 General Industrial District zoning
- Exhibit 7: List of Contacts
- Exhibit 8: Conceptual Site Model [from Parcel 3 RRE]
- Exhibit 9: DRAFT Uncertainty Matrix
- Exhibit 10: Emergency Response Action Plan
- Exhibit 11: Ohio EPA and ODH Protocol for Request to Remove Soil
- Exhibit 12: USEPA and Ohio EPA Protocol for Request to Use Groundwater
- Exhibit 13: Options to provide additional “layering” of Institutional Controls
- Exhibit 14: Excerpts from Ohio Department of Natural Resources [ODNR] website
- Exhibit 15: Ohio EPA regulation of public drinking water wells serving 25 people for more than 60 days out of the year
- Exhibit 16: Ohio Department of Health [ODH] Application/Permit for Private Water System
- Exhibit 17: City of Miamisburg Application and Permit for Street Opening
- Exhibit 18: City of Miamisburg Building Permit Application
- Exhibit 19: City of Miamisburg Certificate of Occupancy
- Exhibit 20: User Groups of LTS Information/Data
- Exhibit 21: Possible Information Management System elements
- Exhibit 22: Excerpt from DOE Ohio Field Office “Records Management Program, A Management Guide” [dated March 2001]
- Exhibit 23: MOA between DOE and Advisory Council on Historic Places, dated October 17, 2000
- Exhibit 24: Executive Summary and Section 2 [Cultural Resource Management Goals] of the MCP “Cultural Resource Management Plan”
- Exhibit 25: Site Transition Framework [July 1, 2002, Revision 1 DRAFT]

LIST OF ACRONYMS

ACHP	Advisory Council on Historic Places
AEA	Atomic Energy Act
AR	Administrative Record
ARAR	Applicable or Relevant and Appropriate Requirements
ASER	Annual Site Environmental Report
BVA	Buried Valley Aquifer
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CRP	Comprehensive Reuse Plan
DOE	Department of Energy
DOJ	Department of Justice
DP	Defense Programs
EM	Environmental Management
EO	Executive Order
EPA	Environmental Protection Agency
FFA	Federal Facility Agreement
FONSI	Finding of No Significant Impact
FY	Fiscal Year
GIS	Geographic Information System
GJO	Grand Junction Office
HQ	Headquarters
HABS	Historic American Building Survey
IC	Institutional Control
ITRD	Innovative Treatment Remediation Demonstration
IPABS	Integrated Planning and Budgeting System
LTS	Long-Term Stewardship
MATC	Mound Advanced Technology Center
MCL	Maximum Contaminant Level
MCP	Miamisburg Closure Project
MEMP	Miamisburg Environmental Management Project
MESH	Miamisburg Environmental Safety & Health
MMCIC	Miamisburg Mound Community Improvement Corporation
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MRC	Mound Reuse Committee
NCP	National [Oil and Hazardous Substances Pollution] Contingency Plan
NPDES	National Pollutant Discharge Elimination System
NEPA	National Environmental Policy Act
NFA	No Further Action
NHPA	National Historic Preservation Act
NPL	National Priorities List
NASA	National Aeronautics and Space Administration
NE	Nuclear Energy
ODH	Ohio Department of Health
ODNR	Ohio Department of Natural Resources
OEPA	Ohio Environmental Protection Agency
OHPO	Ohio Historic Preservation Office
O&M	Operation and Maintenance
OMB	Office of Management & Budget
OU	Operable Unit

OUPS	Ohio Utilities Protection Service
PBS	Project Baseline Summary
PCSWG	Post-Closure Stewardship Working Group
PRS	Potential Release Site
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
RRE	Residual Risk Evaluation
RTG	Radioisotopic Thermoelectric Generator
TBD	To Be Determined
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey

1.0 PURPOSE AND SCOPE OF LONG-TERM STEWARDSHIP PLAN

As stated in the DOE “LTS Planning Guidance for Closure Sites” (issued August 29, 2002), the first critical element of the LTS Plan is a brief statement of why LTS is required at the site (e.g., residual hazards will remain at the site). This section must define the boundaries to which the LTS Plan applies, the breadth of activities it encompasses, the performance objectives for the activities it specifies, roles and responsibilities, and the process for changing the plan itself. Examples of LTS activities may include, but are not limited to, the following work scope: inspect, maintain, and repair engineered containment systems; monitor wells and other as-built features; conduct emergency response; maintain security; monitor environmental indicators; provide reports; and perform information management tasks.

1.1 Objectives of this LTS Plan

The objective of this LTS Plan is to provide a clear explanation of the systems already in existence, as well as those potentially available in the future, that can enhance the effectiveness of the institutional controls selected as the remedy for the parcels of land transferred to-date by the DOE to the Miamisburg Mound Community Improvement Corporation (MMCIC). The DOE Headquarters is currently developing a policy on the use of institutional controls. The current draft of the policy defines “institutional controls” as mechanisms designed to limit access to, or uses of, land or facilities; to protect cultural and natural resources; to maintain physical security of the DOE facilities; and to prevent or limit inadvertent human and environmental exposure to residual contaminants. The main focus of the draft policy is on non-engineered administrative restrictions and physical controls (e.g., monuments, markers, signs, fences) used to limit activities, access, or exposure to land, groundwater, surface water, waste, or waste disposal areas and other geographic areas or environmental media. Collectively, these controls are often referred to as “land use controls” whose purpose is to protect human health and the environment and to supplement and bolster the integrity of engineered environmental remedies.

Eventually, all of the acreage comprising the “1998 Mound Plant Property” will undergo environmental cleanup under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process. The term “1998 Mound Plant Property” refers to the property (approximately 306 acres) originally owned by the DOE. As those portions of the 1998 Mound Plant Property are declared excess to the DOE needs, those portions are transferred to the MMCIC in accordance with the “Sales Contract by and between the USDOE and the MMCIC” executed on January 23, 1998. The CERCLA remedy for transferred land parcels will include, at a minimum, the institutional controls (in the form of deed restrictions) that have been imposed on land parcels transferred to-date to the MMCIC.

1.2 Scope of LTS at the Miamisburg Closure Project

LTS is necessary at the 1998 Mound Plant Property because the remedy selected under CERCLA required cleaning the site to an industrial/commercial use standard that allows some residual contamination to remain onsite. All interested parties, including the regulators, the City of Miamisburg and the public, agreed to this industrial/commercial use standard. The public has been given the opportunity, through many documents and public review meetings, to comment on the industrial/commercial reuse plans for the 1998 Mound Plant Property, including, but not limited to: the “Mound 2000” Work Plan, Residual Risk Evaluation Methodology and a variety of CERCLA property transfer documents. All of these documents are described in later sections of this LTS Plan. The industrial/commercial land reuse has been acceptable to those individuals

or organizations who have participated in the public information process to-date. Refer to **Exhibit 1** to view a 1993 letter from the City of Miamisburg to the Ohio Environmental Protection Agency (OEPA), which states: “. . . It should be known that the Mound site is shown to be used for industrial purposes in our land use plan and is currently zoned I-2 General Industry . . . Further, we have spoken with local stakeholders that are specifically concerned about the environmental issues at Mound and they concur with this land use scenario . . . ”

This LTS Plan describes, in general terms, the DOE response process to enforce the institutional controls. The CERCLA remedies will remain in place until long-lived radionuclide residual contaminants reach acceptable levels. For all land parcels at the 1998 Mound Plant Property that the DOE has transferred to-date to the MMCIC, the CERCLA remedy is institutional controls in the form of deed restrictions. However, for future land parcels, there may be other forms of institutional controls, including additional deed restrictions. There may also be engineered controls for future parcels. Sections 4.0 and 5.0 of this LTS Plan address engineered controls and institutional controls (including land use), respectively. This LTS Plan also describes systems that are presently in place, or which might be created in the future, to enhance the effectiveness of the institutional controls applied to land parcels transferred to-date. These systems, collectively, can create a “layered approach” to ensuring the effectiveness of the institutional controls, however, any of the non-DOE systems described in this LTS Plan are not binding on any party.

1.3 Stakeholder Involvement during LTS Plan Development

This LTS Plan was developed by the DOE Miamisburg Closure Project (MCP), in coordination with the regulators and stakeholders represented on the Post-Closure Stewardship Working Group (PCSWG). In December of 2000, the MMCIC chartered the PCSWG. The MMCIC is a not-for-profit corporation established by the City of Miamisburg to redevelop and reuse the Mound site, as well as transfer Mound assets for reuse. The MMCIC established the following “Stewardship Objective for the Development of a Stewardship Plan” in 2002 (verbatim):

Although the plan will evolve as the final remedies for the site are implemented at the site, it is important we proactively establish a framework for the maintenance of the remedies.

Issues that will need to be addressed as part of the development of the document include:

Development of community expectations for the manner in which the remedies will be maintained.

Funding for activities.

Maintaining a library of environmental documents.

Insuring that the commitment to the end state is achieved.

Determining who or how the remedies will be monitored.

Insuring that the Department of Energy remains responsible to monitor the remedies.

The PCSWG is comprised of representatives from the MMCIC, City of Miamisburg (e.g., City Planner, City Environmental Coordinator, City Council members), USEPA, OEPA, Ohio Department of Health (ODH), Mound Reuse Committee (MRC), Miamisburg Environmental Safety & Health (MESH), Experi-Center, Inc., DOE-Ohio Field Office and DOE-MCP.

In early Fiscal Year 2002, DOE Headquarters' (HQ) Office of Long Term Stewardship (EM-51) provided "pilot project" funding to the PCSWG in order to facilitate the development of an LTS Plan for the 1998 Mound Plant Property. The MMCIC's goal for the PCSWG was to develop a consensus-based LTS Plan that could be endorsed by all affected parties, including the DOE, the regulators, the City of Miamisburg, the MMCIC (as the current property owner), and the local citizens. A consensus-based LTS Plan was not meant to imply that all parties had the same standing under the law, or the same liabilities; rather, it was meant to result in an LTS Plan that was a "sum of its parts." This consensus-based approach to LTS Plan development has proven both beneficial and challenging, in that it has provided the DOE-MCP with valuable insight into the requirements and desires of all affected parties. Some areas of uncertainty continue to be actively discussed between the DOE, its regulators, and the stakeholder community. Such areas of uncertainty are identified throughout this LTS Plan.

The decision-making authority for all "Mound 2000" Approach-related issues is the "Core Team," which includes one voting member each from the DOE-MCP, USEPA Region 5, and Ohio EPA (**NOTE:** the "Mound 2000" Approach is discussed in Section 2.3 of this LTS Plan). Since the PCSWG received EM-51 pilot project funding in FY02, the DOE has consulted with the Core Team on any areas of uncertainty that fall within the Core Team's purview. Other areas of uncertainty, identified during the development of this LTS Plan, and which are not Mound 2000-related, are being addressed separately by DOE, in consultation with the USEPA, OEPA and ODH. Some areas of uncertainty will not be resolved until the DOE-MCP secures guidance or direction from DOE Headquarters (e.g., in cases where the DOE-MCP should not set precedent without first consulting with DOE Headquarters on complex-wide LTS issues).

The DOE-MCP provided the PCSWG with three (3) drafts of this LTS Plan for review and comment in February, May and mid- August 2002. These earlier drafts were developed in the absence of guidance from DOE Headquarters; however, in most cases the content of the earlier draft LTS Plans was consistent with the DOE "Long Term Stewardship Planning Guidance for Closure Sites" issued on August 29, 2002. On December 11, 2002, the DOE provided a fourth draft of this LTS Plan to the PCSWG. The December 2002 draft was also presented to the Mound Reuse Committee in early-January 2003, and this final LTS Plan (designated "Revision 0") incorporates comments DOE received through late-January 2003. It is the DOE-MCP's intent to fully engage the regulators as well as other stakeholders (primarily, the City of Miamisburg, MRC and MMCIC) in the development of, and any future refinements to, this LTS Plan. An initial LTS Plan must be provided by the DOE Ohio Field Office Manager to the Assistant Secretary for Environmental Management (EM-1) by January 31, 2003. It is EM-1's expectation that as each Closure Site nears completion, its LTS Plan will be updated at an appropriate (but not mandated) frequency. Accordingly, as a "living" document, this LTS Plan for the 1998 Mound Plant Property will be updated and changed as circumstances warrant.

The DOE-MCP is the author and custodian of this LTS Plan; however, any party (not just those involved in the development of the initial LTS Plan) can petition the DOE to amend the document. The petition process need not be a formal or lengthy one. A simple phone call to the DOE-MCP point of contact for this LTS Plan is sufficient to start the petition process. Once a petition request has been received by the DOE-MCP, all affected parties will be notified and a meeting will be convened to discuss the issue in a group setting. Proposed changes to the LTS Plan will be discussed with all interested parties before DOE reissues a revised document. This

process will work very well while there is still a DOE presence located on the site. However, as the site nears closure, responsibility for the LTS Plan will transition to the DOE Grand Junction Office, as the designated LTS Steward for the 1998 Mound Plant Property. After site closure, the petition process will need to become more formalized (e.g., petitioner must submit written request to the DOE Grand Junction Office). This degree of formality is also important, once environmental cleanup of the site has been completed and the DOE has exited the property, because there should be a commensurate decrease in the level of attention paid to the site by the regulators, the City of Miamisburg, and the general public (e.g., should no longer be a need for monthly Core Team or MRC meetings).

In May 2002, the City of Miamisburg (through its comments on earlier drafts of this LTS Plan) suggested that once the site is cleaned up and all DOE excess property has been transferred, there will still be a need for a committee, whether it be the current Post-Closure Stewardship Working Group or the Mound Reuse Committee (or some combination of the two). The City asserts that even if this group met at a greatly reduced frequency (relative to the current practice of meeting on a monthly basis), it could serve to address amendments to this LTS Plan or provide input in the event of future problems. Such a committee would be created by a City Resolution (i.e., as was done for the MRC in 1994), should meet at least annually, and should include, at a minimum, representatives from the City of Miamisburg, DOE, Ohio Environmental Protection Agency, and local citizens. DOE applauds this suggestion because the formation of such a group would provide a valuable conduit for information flow, post-closure, between the LTS steward and the local community.

1.4 Organization of the LTS Plan

This LTS Plan is organized in the manner suggested by the DOE “Long Term Stewardship Planning Guidance for Closure Sites.” The plan covers the 1998 Mound Plant Property, as a whole, as opposed to discussing different portions (or parcels) of the site individually. This is a deliberate approach to fully-integrate LTS planning efforts across the site.

2.0 SITE BACKGROUND

2.1 Site Conditions/Description

This section of the LTS Plan provides a record of what space and media fall under the LTS Plan, such that any future LTS steward can understand the full extent of the property for which activities are to be conducted. The LTS Plan describes the physical boundaries of the site, or portions of the site, to which the LTS Plan applies. This may also include activities outside the site boundary if, for example, a groundwater plume has moved offsite. This section of the LTS Plan is supplemented with maps, Geographic Information System (GIS) coordinates, survey benchmark reference points, photographs, or other means of describing the physical boundaries of the site. As stated previously, however, the LTS Plan should not duplicate information that is already available to the public in existing documents (e.g., documents found in a CERCLA Public Reading Room). In such cases, the LTS Plan should simply reference existing documents. Such documents typically include CERCLA documents (e.g., Residual Risk Evaluation, Proposed Plan, Record of Decision, Environmental Summary/CERCLA 120[h] Summary Notice of Hazardous Substances), Annual Site Environmental Reports, and National Environmental Policy Act (NEPA) documents. The LTS Plan will also address the characteristics of any offsite location affected by the DOE LTS responsibility, including current uses, potential future uses, and liens and other property rights. This includes any offsite location

where residual hazards are, or are anticipated to be, located (e.g., offsite soil contamination or groundwater plumes) for which DOE is currently (or may be in the future) responsible for conducting LTS activities, as well as potential effects, if any, that offsite activities may have on the site (e.g., industrial, agricultural, or residential use of properties immediately surrounding the property covered by this LTS Plan).

As stated previously, the term “1998 Mound Plant Property” refers to the property (~ 306 acres) originally owned by the DOE. **Exhibit 2** to this LTS Plan provides a site map and **Exhibit 3** provides a legal description of the 1998 Mound Plant Property. The site map depicts how the site has been divided into “parcels” for the purpose of transferring excess DOE property to the MMCIC in phases (i.e., **Exhibit 2** is not a map that depicts where contamination is currently found on the site – there are numerous CERCLA documents that contain this level of detail). The locations and extent of residual contamination remaining upon completion of the DOE cleanup program will also change considerably as site closure approaches. At that time, and given that the site is being cleaned to an industrial/commercial land use standard (i.e., residual contamination will remain throughout portions of the site), it would be appropriate to include in the LTS Plan a site map that depicts the location of any residual contamination. DOE plans to pursue this discussion with the regulators, so that all parties are in agreement on future map content (e.g., soils have already been moved throughout the property – at what point in time does the map “begin?” which contaminants should be mapped? what concentration levels constitute “residual?”).

As mentioned previously, in January 1998, the DOE and the MMCIC entered into a sales contract for the 1998 Mound Plant Property. The legal description of the 1998 Mound Plant Property contained in **Exhibit 3** to this LTS Plan is also an attachment to the site sales contract. This LTS Plan applies only to those portions of the 1998 Mound Plant Property that have been transferred to the MMCIC, because those land parcels represent the only property remediated to-date that requires land use controls. Refer to **Exhibit 2** to see those parcels that have been transferred to-date, namely, Parcels D, H, 4 and 3.

The DOE, regulators, and the City of Miamisburg have a common concern that the terms “onsite” and “offsite” will cease to have meaning, post-closure, since land parcels will no longer be under Federal ownership and may, in fact, be subdivided or combined into different configurations and sold to other parties. For this reason, it is critical to define the 1998 Mound Plant Property in terms of geographic reference points (e.g., such as those used in a legal description, or GIS reference points associated with parcel boundaries, subsurface contamination or other landmarks).

The Miami-Erie Canal is an “offsite” area that was never owned by the DOE, however, the canal is one of six distinct areas that comprise one contiguous site as listed on the National Priorities List [NPL] in 1989 via Administrative Docket # VW-90-C-075. The canal underwent a soil cleanup, primarily for plutonium, ending in 1998. The residual risk evaluation indicated that risk for the residential child receptor was slightly above acceptable levels. Subsequent sampling for the post-cleanup risk drivers benzo(a)pyrene and dibenzo(a,h)anthracene has been conducted. The final documentation has not been completed and, therefore, the canal should not be ruled out for possible, future inclusion in this LTS Plan. However, based on soil sampling results, it is unexpected that the residual soil within the canal will be subject to long term stewardship. The groundwater under the canal is presently part of a DOE monitoring plan, and some monitoring is expected to continue as part of the long-term groundwater monitoring plan once the DOE cleanup mission is complete.

There may also be “onsite” areas of the 1998 Mound Plant Property that, in the future, will be subject to more than just institutional controls, such as the deed restrictions applied to land parcels transferred to-date. A possible example is the landfill area located in Operable Unit One (OU-1). The landfill is clay-lined, however, it is not a Resource Conservation and Recovery Act (RCRA)-engineered landfill. OU-1, which is located on the western-most boundary of the 1998 Mound Plant Property, is another one of the six distinct areas that comprise the single NPL site. The function of the OU-1 remedial action is to control groundwater contamination (primarily dilute volatile organic compounds [VOC]), to prevent migration of contamination toward the DOE’s drinking water production wells, and to minimize exposure to potential receptors. The pathway of concern consists of leaching of contaminants from site soils or disposed waste, entrainment in the groundwater flow, and withdrawal by the DOE production wells or by other, future wells. The selected remedy for OU-1 is the collection and treatment of contaminated groundwater and disposal of the treated water. The major components of the selected remedy from the OU-1 Record of Decision (ROD) include: (1) three groundwater extraction wells within OU-1; (2) treating the extracted groundwater to remove VOC, and other constituents, using cascade aeration, ultraviolet oxidation, conventional air stripping or other suitable treatment units; and (3) discharging the treated groundwater to the Great Miami River through an existing National Discharge Pollutant Discharge Elimination System (NPDES) outfall or new outfall. Following installation and operation of the groundwater extraction wells, the OU-1 ROD requires the DOE to monitor the chemical properties and hydraulic behavior of the groundwater system to verify the adequacy of the remedy.

During the installation of an air sparging system in OU-1 (a technology identified as an enhancement to the OU-1 remedy), elevated levels of thorium were encountered. Because of this new information, along with the amount of contaminants collected by the OU-1 system and the site’s industrial/commercial reuse plan, present plans include a reevaluation of the Potential Release Sites (PRS) associated with crushed (empty) thorium drums in the historic trenches that lie beside the landfill located in OU-1. The outcome of this reevaluation may result in future LTS activities. Presently, the OU-1 area resides in a parcel of land that is expected to be transferred as the final parcel. If, in the future, the OU-1 collection and treatment system meets the remediation goals established in the OU-1 ROD, this mechanical system may not need to continue operating and may not require LTS as an engineered control. If, however, remediation goals are not met, this mechanical system will be subject to LTS after property transfer.

The DOE has both an Environmental Monitoring Plan and a Groundwater Monitoring Program & Groundwater Protection Management Program Plan. Both of these documents describe current efforts to monitor all appropriate environmental media at, or affected by, the 1998 Mound Plant Property. The results of these monitoring programs are published annually in the DOE “Annual Site Environmental Report (ASER).” However, as the site draws closer to closure, the DOE requirement to prepare an ASER will likely be revisited. Section 5.1 of this LTS Plan describes the DOE plans for a future “integrated” groundwater monitoring plan, post-closure. This integrated post-closure plan would replace the current environmental and groundwater monitoring plans.

In terms of some of the other site description elements, listed at the beginning of this section, the following information was taken from the 2001 Annual Site Environmental Report for the 1998 Mound Plant Property. As of December 2001, the property that was still under DOE ownership included 86 buildings on 184 acres of land. The Great Miami River flows southwest through the City of Miamisburg and dominates the geography of the region surrounding the site. The river valley is highly industrialized. The rest of the region is a mix of farmland, residential areas, small communities and light industry. Many city and township residences, five schools, the

Miamisburg downtown area, and six of the city's parks are located within one mile of the 1998 Mound Plant Property.

Population information extracted from the 2000 Census by the Ohio Department of Development shows that within a ten mile radius of the 1998 Mound Plant Property, there are 340,150 residents, and within a 0-50 mile radius of the site, there are 3,126,615 residents. The primary agricultural activity in the area is raising field crops such as corn and soybeans. Approximately 10% of the agricultural land is devoted to pasturing livestock.

The geologic record preserved in the rocks underlying the site indicates that the area has been relatively stable since the beginning of the Paleozoic era more than 500 million years ago. There is no evidence indicating subsurface structural folding, significant stratigraphic thinning, or subsurface faulting. Limestone strata, which are interbedded with shale layers at the site, show no evidence of solution activity. No evidence of solution cavities or cavern development has been observed in any borings or outcrops in the Miamisburg area.

The aquifer system of the 1998 Mound Plant Property consists of two different hydrogeologic environments: groundwater flow through the bedrock beneath the hills, and groundwater flow within the unconsolidated glacial deposits and alluvium associated with the Buried Valley Aquifer (BVA) in the Great Miami River valley. The bedrock flow system is dominated by fracture flow and is not considered a highly productive aquifer. The BVA is dominated by porous flow with interbedded gravel deposits providing the major pathway for water movement. The unconsolidated deposits are Quaternary Age sediments consisting of both glacial and fluvial deposits. The BVA is a highly productive aquifer capable of yielding a significant quantity of water and is considered a sole source aquifer.

The climate in the southwestern portion of Ohio, including the 1998 Mound Plant Property, is moderate. The average annual precipitation rate is 83 cm (33 in) per year, and winds are predominantly from the south-southwest. The average temperature in 2001 was 13.4 °C (56 °F) with a maximum of 37 °C (98.6 °F) and a minimum of -13 °C (8.6 °F).

Site elevations vary from 216 m to 268 m (700 ft to 900 ft) above sea level; most of the site is above 244 m (800 ft). No building in which radioactive material is processed is located below an elevation of 241 m (790 ft). The typical non-flood stage of the Great Miami River is 208 m (682 ft). The highest flood-water levels that can be reasonably postulated for the Great Miami River basin (100-year storm event) would result in flooding to 213 m (700 ft).

In terms of liens and/or other property rights associated with site, as parcels of the 1998 Mound Plant Property are declared excess by DOE, they are cleaned to an industrial/commercial use standard and ownership is transferred from the Federal government to the MMCIC. The ROD that verifies the cleanup level, and the quit claim deed that accompanies the ROD, contain the deed restrictions for that parcel. These deed restrictions apply to MMCIC (i.e., the current property owner) and all future property owners. Land and groundwater use restrictions, allowable under an industrial land use scenario, must be put in place in order to control exposure to humans and/or the environment. This LTS Plan for the 1998 Mound Plant Property describes the activities necessary to ensure that the use restrictions are effective. This LTS Plan also describes activities that could provide additional "layering" of the institutional controls. These additional activities are not required, nor are they essential to DOE maintenance of the remedy.

Users of this LTS Plan who desire more detailed information on site conditions at the 1998 Mound Plant Property are encouraged to read the Operable Unit Nine (OU-9) Site Scoping Reports. These reports are available in the CERCLA Public Reading Room.

2.2 Site Operational History

The 1998 Mound Plant Property is located in Miamisburg, Ohio, approximately ten miles southwest of Dayton. In 1946, DOE built the Mound Plant to develop and fabricate nuclear and non-nuclear components for the weapons program. The Mound Plant also manufactured stable (i.e., nonradioactive) isotopes for medical, industrial and general research. Another major operation at the Mound Plant was the surveillance of explosive and radioactive weapons components received from other DOE sites. In the 1950s, the Mound Plant began building detonators, cable assemblies, and other non-nuclear weapons components and products. In 1969, the Plant's mission expanded to include retrieving and recycling tritium from dismantled nuclear weapons. In addition, the mission at the Mound Plant involved the production of components that contained Plutonium-238, Polonium-210 and tritium, and the processing of large quantities of high explosives. The DOE continues to play an important role at the 1998 Mound Plant Property by supporting the Nuclear Energy (NE) mission. NE work performed at the site includes developing and fabricating radio isotopic thermoelectric generators fueled with Plutonium-238 to provide power sources for such projects as lunar experiments, satellites, and spacecraft. In 1993, DOE announced plans to transfer the Defense Program (DP) mission at Mound Plant to other sites in the DOE complex, and in 1995, landlord responsibility for the site was transferred from DP to the DOE Environmental Management (EM) Program. In late-2002, the DOE announced its plans to transfer the NE mission to the Argonne-West Laboratory in Idaho. Accordingly, the MCP site is currently in the process of identifying process equipment and fixtures that will be transferred to the new location in Idaho, after which time the real property can be turned over to the EM landlord for environmental cleanup.

The 1998 Mound Plant Property was acquired by the DOE in stages. In 1946, the U.S. Army Corps of Engineers (USACE) took soil-boring samples on the hills and in the ravines west of Mound Road, and in the area south of the Mobley residence. Shortly before the USACE began its soil sampling in the Miamisburg area, William McNear Rand of St. Louis, the president of the Monsanto Chemical Company, announced that the Central Research Laboratory in Dayton, Ohio, would be opening a new facility. A month later, the War Department announced that contracts for the construction, of what was then called Unit V, had been awarded to the Maxon Construction Company of Dayton, Ohio. By early 1947, the Mobley farm was sold to the government for \$32,500. Sale of the Mobley farm included its 89 acres and all of its buildings. As noted by a historic account of the property acquisition that was published in the 1990s, it was also understood at that time that 34 acres owned by Arthur Sorrell, 20 acres owned by John Adams, and 17.5 acres owned by Earl C. Hoerner were also included in the properties acquired by the Federal government. In 1981, the DOE acquired the "South Property" through the purchase of the Penrod residence (79 acres) and the Initial Investment property (42 acres). Further details on the DOE acquisition of all properties that comprise the 1998 Mound Plant Property may be found in other documents compiled in accordance with the site's Cultural Resources Management Program (refer to Section 10.0 of this LTS Plan for additional information on the DOE cultural, historic or natural resources management programs).

Users of this LTS Plan who desire more detailed information on the operational history of the 1998 Mound Plant Property are encouraged to read the Operable Unit Nine (OU-9) Site Scoping Reports. As mentioned previously, these reports are available in the CERCLA Public Reading Room.

2.3 Remediation Process

This section of the LTS Plan summarizes all actions (i.e., not just those resulting in LTS requirements) taken relative to site contaminants (cleanup actions); closing, stabilizing, and decontaminating and decommissioning onsite facilities; closing onsite waste management disposal cells (if any), thus indicating how risk has been managed and what implications may be put to future monitoring results. The condition of offsite areas of contamination will be described, to the extent that they are unique to those areas versus the site-wide conditions. The LTS Plan also provides a synopsis of the original exposure pathways and how, or if, exposure pathways have been terminated. The discussion includes the level of redundancy in those actions such that the future LTS Steward can understand the implications of perceived failures and/or proposed changes in site use. The LTS Plan also describes the uncertainties and assumptions regarding remediation processes, thus alerting the future LTS Steward to those elements of the model and remedy that may be based on erroneous or missing data. A synopsis of the risk associated with residual hazards and why those hazards prohibit unrestricted use of the site is also provided.

Because the majority of the information outlined above is contained in a voluminous set of CERCLA documents that are already available to the public in the CERCLA Public Reading Room (currently located in downtown Miamisburg, Ohio), this LTS Plan only provides a brief summary of the remediation process at the 1998 Mound Plant Property to-date. As a result of past production of the DOE at the site, some buildings, soils and groundwater areas are contaminated with radioactive and hazardous chemicals. The USEPA placed the site on the National Priorities List (NPL) in 1989 because of chemical contamination present in the site groundwater and the site's proximity to a sole source aquifer. DOE signed a Federal Facility Agreement (FFA) for the remediation of the site with the USEPA in 1990. In 1993, the FFA became a tri-party agreement through the addition of the OEPA. The purpose of the FFA was to establish a procedural framework and schedule for developing appropriate response actions and to facilitate cooperation and exchange of information.

Initially, the remediation of the NPL site was organized around nine Operable Units (OU), each of which included several potential release sites (PRS). PRSs are discrete areas where knowledge of historic or current uses indicates that radioactive and/or hazardous materials may have been released into the environment. However, the OU approach was found to be inefficient for the NPL site because the environmental problems at the site were discrete and not interrelated. Accordingly, DOE and its regulators decided to evaluate each PRS or building separately, and use the Removal Action authority under CERCLA to remediate the PRSs and the buildings, as needed. This PRS or building approach was called the "Mound 2000" Approach. Once individual PRSs and buildings in a particular land parcel were remediated, a residual risk evaluation (RRE) was conducted to quantify the cumulative human health impact of known residual contamination within that parcel. Before the parcel is transferred to the MMCIC, the RRE must show that the risk to human health is within acceptable limits set forth by USEPA in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). If ecological conditions dictate, an Ecological Scoping Report is completed on a land parcel to identify possible ecological impacts.

The DOE expects to complete all remediation activities at the 1998 Mound Plant Property no later than September 2006. Any residual contamination left onsite will be below levels satisfactory for an industrial/commercial use scenario. Because the site will have residual contamination, DOE has (thus far) imposed three deed restrictions that will run with transferred

land, regardless of who owns the property. In general terms, the three deed restrictions are: soil cannot be removed from the 1998 Mound Plant Property without prior regulatory approval, groundwater may not be used without prior regulatory approval, and the land use must remain industrial. A more in-depth discussion of these deed restrictions can be found in Section 5.1, Institutional Controls, of this LTS Plan. These deed restrictions are used to ensure protection of human health and the environment for as long as residual contamination levels warrant.

An important point to consider in LTS planning is whether future technological advances might warrant a “second look” at methods for monitoring the effectiveness of the remedy. At a minimum, such reviews should occur during the five-year review mandated by the CERCLA statute. However, such reviews can occur on a more frequent basis. For example, at present, DOE-MCP is required by the DRAFT “Operation and Maintenance (O&M) Plan for the Implementation of Institutional Controls at the ‘1998 Mound Plant Property’ ” to assess, on an annual basis, the effectiveness of the institutional controls applied to land parcels that have completed the CERCLA 120(h) process for property transfer. The DOE draft O&M Plan is still being reviewed by the regulators, and is not yet ready for a public review and comment cycle. The O&M Plan is an enforceable document that is required by each parcel ROD, and which describes the actions DOE is responsible for to maintain the CERCLA remedy. DOE-MCP has already performed three annual assessments, as required by the parcel RODs. Those assessments covered Parcels D, H and 4 (refer to **Exhibit 2** for a map of the 1998 Mound Plant Property). The results of the DOE assessments conducted in 1999, 2000 and 2001 are documented in the “Annual Assessment of the Effectiveness of Institutional Controls applied to the former Mound Site Property” (dated June 13, 2002), copies of which are available in the CERCLA Public Reading Room.

Exhibit 4 to this LTS Plan includes a sample of the checklist that DOE uses during its review of the effectiveness of institutional controls. Thus far, information used during these assessments has been gathered by hand (e.g., via physical walk-over of parcels and visual assessment of whether soil has been removed, groundwater wells have been installed, or deviation from an industrial land use has occurred). However, the DOE-MCP is evaluating technologies that could automatically provide this sort of information to the LTS Steward at a remote location. Some sample technologies that DOE may evaluate prior to site closure include: aerial imaging techniques (including digitized photos), video camera surveillance techniques, portal monitors, and information management technologies. By capitalizing on the use of technologies, it should be possible to enhance LTS efforts to provide added assurance that efforts taken to-date have accomplished what they were intended to accomplish, in terms of environmental cleanup and reuse of the property as a commercial industrial park.

2.4 Site Conditions at Closure

This section of the LTS Plan identifies the location and nature of residual contaminants and physical hazards. Readers seeking more detailed information should visit the CERCLA Public Reading Room, located in downtown Miamisburg, Ohio. Post-closure, the CERCLA Administrative Record may be moved to a different location. Information in this section of the LTS Plan can be presented in graphical form (i.e., annotated maps) or other forms such that the location of the contaminants or residual hazards can be identified. The LTS Plan should identify the assumptions used in developing the sites’ end state. This will allow the future LTS Steward to properly evaluate monitoring data or maintain contingency plans where appropriate. Assumptions should be modified or removed as monitoring data are collected and a better understanding of the site is developed.

As stated previously, on January 23, 1998, the DOE and the MMCIC entered into a sales contract for the 1998 Mound Plant Property. The sales contract excludes real property needed for the DOE ongoing NE mission, as well as buildings slated for demolition as part of the EM cleanup mission. DOE had the full capacity, power and authority to enter into the sales contract pursuant to the Atomic Energy Act (AEA). The DOE, USEPA, OEPA, MMCIC and the public have all agreed that the site will be cleaned to an industrial/commercial use standard (refer to **Exhibit 1**). DOE agreed to convey the site by discrete parcels, as property was deemed excess to the DOE needs, and subject to coordination with the USEPA and OEPA pursuant to CERCLA. DOE conveys a quit claim deed to the MMCIC with the transfer of each land parcel.

The MMCIC's primary roles are ensuring the 1998 Mound Plant Property is converted to its best use, achieving the economic development objectives of the community, and replacing the economic and fiscal losses that were caused by the closure of the facility. DOE involves the MMCIC, as the future property owner, throughout the property transfer process. MMCIC has been a key participant throughout both the real estate and the CERCLA processes for each parcel transfer. Parcels may not be transferred to MMCIC until the USEPA and OEPA concur that the parcel is protective of human health and the environment under an industrial land use scenario. Section 5.2, Land Use Planning/Implementation, of this LTS Plan provides more detailed information on the MMCIC's "Comprehensive Reuse Plan (CRP)." Any future development of the 1998 Mound Plant Property will be consistent with the CRP; in fact, the City of Miamisburg adopted the CRP as part of the City's comprehensive land use plan. The CRP establishes standards that are, in some cases, more stringent than development standards that would otherwise apply to industrial areas of the City of Miamisburg, as a whole. For example, the CRP establishes boundaries for the types of industries that may locate to the 1998 Mound Plant Property. The boundaries in the CRP are more stringent than the City's I-2 General Industrial District zoning would otherwise allow. The City's I-2 zoning is explained in greater detail in the following paragraphs.

The Core Team, which is comprised of a representative from the DOE-MCP, USEPA, and OEPA, determines when a land parcel can be transferred to the MMCIC. The Mound 2000 process includes several opportunities for public review and comment before a land parcel is finally transferred. This same land transfer process is expected to continue until all property, which has been declared excess to the DOE, has been transferred to the MMCIC.

The MMCIC works closely with the Mound Reuse Committee (MRC). The MRC is an independent advisory organization with concerns related to the future use and cleanup of the DOE former Mound Plant facility. City of Miamisburg Resolution Number 2216 created the MRC on June 21, 1994. The MRC's charter allows for fourteen members comprised of representatives from the community, City staff, and State regulators. MRC provides advice to the MMCIC, DOE, USEPA, OEPA, and the City on major issues and decisions related to reuse and cleanup activities at the 1998 Mound Plant Property. See **Exhibit 5** of this LTS Plan for a copy of the MRC's Charter and Scope & Responsibilities.

The MRC issued a "Miamisburg Mound Interim Land Use Policy" (also in **Exhibit 5**) that is more restrictive than the City of Miamisburg's I-2 General Industrial District zoning (see **Exhibit 6**), which would otherwise apply to the 1998 Mound Plant Property (once that property had been transferred from Federal government ownership). The MRC's Interim Land Use Policy "governs decisions regarding the recruitment, placement, retention, and expansion of all businesses and development activities at the Mound Advanced Technology Center (MATC) under the auspices of MMCIC until the City obtains jurisdiction for land use regulation of the site." Property owned by the DOE is not subject to the City's zoning ordinances; however, after DOE transfers ownership of parcels to the MMCIC, that property is subject to the City's zoning

ordinances. The MATC is the name of the 1998 Mound Plant Property today, as the MMCIC invites industry to the property to further economic development. The MRC Interim Land Use Policy is intended to accommodate development and redevelopment by permitting a mixture of land uses including research and development activities, manufacturing, offices and related service uses. Land use must be consistent with the USEPA risk-based industrial/commercial use scenario evaluated in the ROD for each land parcel. A more detailed list of permitted uses can be found in the MRC's Interim Land Use Policy attached in **Exhibit 5**. After DOE conveys title of land parcels to the MMCIC, that property is no longer subject to the MRC's Interim Land Use Policy; instead, that property becomes subject to the City's I-2 zoning (see **Exhibit 6**).

Whether or not the MRC (or the MMCIC) remain as long-term viable entities after the DOE transfers the last parcel to the MMCIC is irrelevant, in terms of this LTS Plan. The DOE remains responsible for maintaining and monitoring the remedy, and the property owner remains responsible for complying with the deed restrictions imposed on his/her property. Since it is reasonable to assume that the City of Miamisburg will remain a viable entity, this LTS Plan should encompass those actions that the City would take as a "normal course of business" (e.g., monitoring compliance with I-2 zoning, street opening permits, construction permits). It would be unreasonable to assume, in this LTS Plan, that the City of Miamisburg would take on some role that is greater than the "normal course of business" (e.g., creating an overlay zone for the 1998 Mound Plant Property). Section 5.1 of this LTS Plan provides information on possible, future actions that could be taken by a number of parties; however, this information is simply provided to demonstrate that DOE, the regulators, the MMCIC, the City and members of the public, have brain-stormed on a number of issues that could supplement (but not replace) the DOE Long-Term Stewardship obligations at the 1998 Mound Plant Property.

3.0 AUTHORITY AND ACCOUNTABILITY

This section of the LTS Plan documents the legal authorities under which LTS will be conducted, and the key organizations or groups responsible for carrying out LTS activities. The plan should include clear identification of the LTS Steward and other involved parties, as well as how those positions relate to the regulators. In addition, when other parties will carry responsibility for performance of specific LTS activities, those parties and the scope of their responsibilities must be clearly identified (e.g., when the landlord will maintain use restrictions or regulators will monitor resource use). Any agreement that states authority and accountability should be identified and referenced. In addition to identifying the assignment of responsibilities, this section of the LTS Plan should also identify the communication requirements, especially the knowledge management activities associated with archiving information for future generations. This section also should include a list of points of contacts.

Relative to the LTS Plan components listed above, at the 1998 Mound Plant Property, the property owner (at this point in time, the MMCIC) is responsible for complying with the deed restrictions, and the DOE is responsible for monitoring, maintaining, and enforcing the deed restrictions. To fulfill that responsibility, DOE is required to develop and implement an Operation and Maintenance (O&M) Plan that outlines how DOE will monitor and ensure the effectiveness of the deed restrictions. The DOE O&M Plan is updated each time a ROD is approved for a land parcel. The O&M Plan is a dynamic document which can be revised by the DOE, as necessary, with approval from the USEPA and the OEPA. The O&M Plan is a legally enforceable document through the ROD. At present, the Post-Closure Stewardship Working Group is helping to shape how the DOE manages the institutional controls applied to the 1998 Mound Plant Property. The O&M Plan is amendable by the parties to the Federal Facility Agreement (FFA). The public has the ability to work through any party to the FFA to effect

changes to the O&M Plan. As with any change request, all parties must agree to the change. If DOE does not sufficiently carry out its duties outlined within the O&M Plan, the USEPA and OEPA can use their enforcement authorities to make the DOE fulfill its legal obligations.

The aforementioned Federal Facility Agreement defines the DOE, USEPA and OEPA responsibilities and authorities. At some point in time, if the FFA is terminated, it will be necessary to enter into a new legally-binding agreement between DOE, the USEPA and the State of Ohio. However, for now, the FFA is the governing document for all EM activities undertaken at the 1998 Mound Plant Property.

The DOE is also responsible, under CERCLA, to respond to any releases of hazardous substances (that are attributable to previous DOE operations) that may occur after parcels at the 1998 Mound Plant Property have transferred from Federal government ownership. An example of this might be the discovery of a buried drum, years from now, when a property owner undertakes an excavation project. Similarly, under CERCLA, after DOE transfers ownership of property, the new property owner is responsible for responding to any releases attributable to the property owner's operations (or to a third party's operations which the property owner has allowed to occur). It is important to note that the 1998 site sales contract between DOE and the MMCIC includes a Remedial Action Covenant. That covenant requires the DOE to take all remedial action necessary to protect human health and the environment before transferring any property to the MMCIC. The covenant further requires DOE to take any additional remedial action (i.e., post-transfer of property) found to be necessary by regulatory authorities with jurisdiction over the property.

The DOE-MCP plans to enter into a Memorandum of Understanding (MOU) with the DOE Grand Junction Office, as the future LTS Steward of the 1998 Mound Plant Property. Such an MOU would transfer responsibilities for a wide variety of issues from the DOE-MCP to the DOE Grand Junction Office. At this point in time, it is too early to begin drafting the MOU. However, the need for an MOU will be reevaluated by DOE as site closure draws nearer.

Exhibit 7 to this LTS Plan includes a list of contacts, including the DOE, its regulators, and representatives for the various groups consulted by DOE during the development of this LTS Plan.

4.0 ENGINEERED CONTROLS AND POST-CLOSURE RESPONSE

4.1 Engineered Controls

This section of the LTS Plan describes each engineered control (such as caps and permeable treatment walls) that is being implemented, as a part of the LTS program. This includes a discussion of the surveillance and maintenance activities by which effectiveness will be monitored, as well as the roles and responsibilities for maintaining the engineered controls. In addition, this section includes a discussion on the role of advances in science and technology on stewardship at the site. If monitoring activities are part of LTS at a site, this section of the LTS Plan describes the media to be monitored, the method, frequency and objectives for the monitoring program, the reporting requirements, and any quality assurance, contingency or emergency action plans.

Relative to the above elements, for purposes of this LTS Plan, a “containment system” is defined as an engineered or natural system used to control exposure of contaminants to the environment. The 1998 Mound Plant Property may have containment system(s) in place when DOE vacates

the property and full ownership of the premises is turned over to the MMCIC. As of the date of this LTS Plan, the 1998 Mound Plant Property has an operating groundwater collection and treat system in place (i.e., Operable Unit [OU] -1). As explained in Section 2.1 of this LTS Plan, the outcome of both the DOE reevaluation of the PRSs associated with crushed (empty) thorium drums in the historic trenches that lie beside the landfill located in OU-1, and the effectiveness of the groundwater collection and treatment systems in OU-1, are unknown at this time. These systems are mentioned in this section of the LTS Plan, however, as possible examples of future LTS engineered controls.

Although this LTS Plan applies only to those parcels of the 1998 Mound Plant Property that have been transferred to-date, a brief summary of the CERCLA five-year review process of the OU-1 groundwater collection and treatment systems is included in this section of the LTS Plan. Consistent with Provision XVII, Five Year Review, of the Federal Facility Agreement, in the Fall of 2001, the DOE-MCP performed the first five year review of the OU-1 remedy. On September 28, 2001, the Director of USEPA Region 5 approved the DOE "Five-Year Review Report for the OU-1 Remedy." A copy of the five-year review report is available in the CERCLA Public Reading Room. The extraction and monitoring wells for the OU-1 pump & treat operation were installed in 1996, and an air stripper was installed and full operations began in February 1997. The groundwater collection and treatment systems were designed to contain volatile organic compounds (VOC) in the groundwater, per the OU-1 ROD signed in June 1995.

Recognizing the importance of advances in science and technology in both remediation design and LTS requirements, as a part of the Innovative Treatment Remediation Demonstration (ITRD) initiative (an advisory group comprised of DOE, USEPA and industry), air sparging and soil vapor extraction were suggested as enhancements to the OU-1 pump & treat remedy. The air sparging and soil vapor extraction systems installation was completed and operations began in December 1997. The DOE five-year review of the OU-1 remedy in the Fall of 2001 included three components: (1) physical inspection of the operation, (2) review of documents, and (3) personnel interviews. As a result of the five-year review, the DOE determined that the remediation system in OU-1 was functioning as designed, as evidenced by the continued drop in influent contaminant concentrations as well as declining concentrations at the boundary of compliance. Hydraulic containment of the area of concern was fully-demonstrated. The next five-year review of the OU-1 remedy is scheduled for early-2006.

4.2 Uncertainty Management

This section of the LTS Plan provides a discussion of the link between the conceptual site model and assumptions provided in the site description. The objective is to explicitly identify that which is not known or understood (i.e., uncertainties) so that monitoring data can be properly evaluated and contingency plans developed and maintained to help manage potential future risk. Uncertainties should be identified in several areas, including, but not limited to: regulatory changes, land use change (both onsite and offsite), failures in land use controls, technology effectiveness (in terms of performance), changes in ambient subsurface conditions, changes in facility use, etc. The plan should also clearly articulate assumptions that were made during end-state selection, and selection of LTS activities, etc., such that a future LTS Steward can test those assumptions to determine if they are still valid.

The most-recent update to the conceptual site model for the 1998 Mound Plant Property is documented in the Residual Risk Evaluation (RRE) for Parcel 3, dated April 25, 2000. The Parcel 3 RRE is available in the CERCLA Public Reading Room. A pictorial representation of the exposure pathways identified for potential receptors is included in the Parcel 3 RRE

conceptual site model; that pictorial representation is attached as **Exhibit 8** to this LTS Plan. The conceptual site model summarizes the pathways that hazardous substances may take to reach potential receptors. Exposure assumptions used to evaluate potential exposure pathways were drawn from the “Risk-Based Guideline Values” (issued March 1997) and the “Mound 2000 Residual Risk Evaluation Methodology” (issued January 1997) for the 1998 Mound Plant Property. Residual contamination for land parcels transferred to-date has been evaluated for two potential receptors, representing the industrial/commercial use scenario: (1) adult construction worker and (2) site employee. These receptors are evaluated based on exposure to residual contamination in soil, groundwater and air.

Since it is reasonable to assume that construction activities could occur at the 1998 Mound Plant Property, adult construction workers were identified as potential receptors in the conceptual site model. During construction activities, these receptors could be exposed to residual contamination present in soil at or below the land surface. Potential exposure pathways include incidental soil ingestion, external radiation exposure, inhalation of airborne dust and vapors, and dermal contact with soil. It was also assumed that construction workers would use Buried Valley Aquifer (BVA) groundwater for drinking water supply and for showering onsite. Exposure pathways include ingestion, inhalation of vapors, and dermal contact with groundwater while showering. Construction workers were assumed to be on the property eight hours per day, 250 days per year over a five-year period. Since construction workers were assumed to be adults, a body weight of 70 kilograms was used to assess exposure to chemical contaminants.

In terms of the second potential receptor evaluated in the conceptual site model for the 1998 Mound Plant Property, it is reasonable to assume that a site employee (i.e., non-construction worker) will also be exposed to residual contamination left on the property. The exposure routes evaluated for the site employee are similar to those evaluated for the construction worker, except that the site employee is assumed to work indoors and, therefore, have less exposure to site soil. Potential soil exposure pathways include incidental soil ingestion, external radiation exposure, and inhalation of airborne dust and vapors. Site employees were assumed to use BVA groundwater for potable supply, but are not expected to shower at work. Site employees were assumed to be on the property eight hours per day, 250 days per year over a 25-year period. Since site employees were assumed to be adults, a body weight of 70 kilograms was used to assess exposure to chemical contaminants. For more detailed information on the site conceptual model for the 1998 Mound Plant Property, readers should refer to the Parcel 3 RRE (available in the CERCLA Public Reading Room).

The DOE-MCP recognized the importance, early on, of identifying LTS uncertainties while environmental remediation work is still in progress, and in early-2002, DOE began gathering preliminary data to develop an “Uncertainty Matrix,” as depicted in the DOE guidance document entitled “Planning and Implementing RCRA/CERCLA Closure and Post-Closure Care When Wastes Remain Onsite” (DOE/EH-413-9910, issued October 1999). This preliminary data was based on interviews with personnel from DOE, the DOE prime contractor, USEPA, OEPA, ODH, the City of Miamisburg, and the MMCIC. In October 2002, DOE met with the regulators to reach consensus on the probabilities and impacts of the entire spectrum of uncertainty scenarios gathered during the DOE initial data-collection phase earlier that year. The outcome of the October 2002 DOE/regulator meeting was a draft consensus list of prioritized uncertainty scenarios, as well as an agreement to manage all of the risks associated with LTS uncertainties up-front, regardless of when in the future those risks become likely (e.g., less than five years after site closure, 5-10 years after closure, greater than 10 years after closure). Such a management approach to uncertainty by the DOE establishes that it is valuable to set in place management approaches for both current risks (i.e., uncertainties that have a higher probability of occurring sometime in the near-term) and future risks (i.e., uncertainties that have a low

probability of occurring in the near-term, but have a higher probability of occurring sometime in the future). In terms of LTS planning at the 1998 Mound Plant Property, the DOE is planning to monitor for and manage all risks that are significant, however, the level of contingency planning will likely reflect how probable the risks are in the near-term.

The following is a list of uncertainties associated with maintaining long-term protection of human health and the environment at the 1998 Mound Plant Property. This list was developed by the DOE, in consultation with the USEPA, OEPA, ODH, the City of Miamisburg, and the MMCIC. DOE made a conscious decision, during the preliminary data-collection phase, to not limit the identification of uncertainties to only those risk scenarios that were perceived as significant (i.e., in terms of impact to human health and/or the environment). In other words, in lieu of narrowing down the list of uncertainties right from the start, the DOE preliminary data-collection included the identification of uncertainties expected to present minimal risk or to be inconsequential. DOE evaluated both the probability and impact associated with each risk scenario. The results of this evaluation are being documented in an uncertainty analysis report that is still under development by the DOE at the time of this writing. However, the following is a list of the uncertainties for the 1998 Mound Plant Property, as compiled by the DOE, and organized by the general categories contained in the DOE "LTS Planning Guidance for Closure Sites:"

Regulatory changes

- Changes in cleanup levels result in: 1) the site no longer being considered protective in the future, and/or 2) in-place monitoring technologies unable to demonstrate that contamination is at or below cleanup levels (e.g., due to detection limits).

Land use change

- Site is used for a land use that is not allowed under the ROD/deed, such as residential, a day care facility, a school, a community center, playground, or other recreational or religious facility for children.
- Site is used for farming.
- Site is used for a land use that is not anticipated based on the industrial land use designation. Of specific concern is that the site is used for health-care related commercial activities (e.g., hospitals, elder care), or non-health care related commercial activities (e.g., restaurants).
- Definition of industrial land use changes in the future to include new scenarios that are not specifically excluded by the deed (e.g., the City of Miamisburg could potentially allow uses permitted under an I-2 zoning and not specifically excluded in the ROD/deed).
- MMCIC/City does not succeed in developing the site for industrial/commercial use. The concern is that lack of an industrial park increases the probability that a deed restriction may be violated.
- No central oversight/ onsite presence. The specific concern is that a lack of onsite oversight increases the probability that a deed restriction may be violated.

Failure in land use controls

- Movement of soil offsite without approval (for private use, for a facility for children under 18 years, to a landfill or to another industrial site, or for recreational use).
- Boundaries of the site are lost over time. The concern is the possibility of encroachment toward the boundaries. Of most concern is the scenario where a neighbor to the 1998 Mound Plant Property plants a vegetable garden onsite and consumes the

- fruits/vegetables grown.
- Use of onsite Buried Valley Aquifer (BVA) for drinking water without regulators' approval.
- Use of onsite BVA aquifer for industrial processes without regulators' approval.
- Use of onsite BVA aquifer for irrigation of consumable crops without regulators' approval.
- Use of BVA aquifer without regulators' approval for firefighting, construction, or irrigation of plants that are not typically consumed by people.
- Use of water from bedrock aquifer for drinking water without regulators' approval.
- Use of water from the bedrock aquifer, without the regulators' approval, for irrigation of plants that are not typically consumed by people.
- Children play in the seep area.
- Water from the seeps is used for drinking.
- Worker who is less than 18 years of age is employed at the site (full or part-time).
- Trespassing for the purpose of off-roading. The main concern is chronic exposure of children under 18 years of age.

Technology effectiveness (in terms of performance)

- Rapid advances in records imaging and retrieval technology make previous records unreadable. The specific concern is that needed records (e.g., for litigation, public concern), are not readable, resulting in either Federal liability or re-work (e.g., environmental sampling).
- System for monitoring the CERCLA remedy breaks down at some point in the chain of events. This scenario includes all things required for monitoring – e.g., monitoring equipment, data transfer, data analysis.
- Records retrieval system results in someone getting incorrect information.
- New monitoring data are not interpreted correctly. Of particular concern is that the party responsible for monitoring data is not familiar with site-specific conditions. The result could be that new data are interpreted incorrectly to indicate that further action or additional data collection is warranted at the site (e.g., high concentrations of certain metals in the groundwater may be due to corrosion of the well casings).

Changes in understanding of site conditions (i.e., conceptual site model) / Changes in ambient subsurface conditions

- Exposure occurs due to presence of unknown contamination. Specifically, a site construction worker or utility maintenance worker is exposed to unknown contamination while digging.
- Fish are consumed from the storm water retention pond constructed by the MMCIC on the “South Property” of the 1998 Mound Plant Property.
- Burning of vegetation that has absorbed contamination through uptake, resulting in dispersion via suspension of contaminated particulate matter.
- A flood / heavy rains / erosion results in movement of large quantities of soil from the 1998 Mound Plant Property.
- Tornado results in movement of large quantities of soil from the 1998 Mound Plant Property.

Changes in facility use

- Playing/Swimming in storm water retention pond on South Property.
- Falling into storm water retention pond on South Property.

- Occupant uses facility in a manner different than expected in the RRE (e.g., site employee works over a 40-hour workweek for periods of time approximating the exposure scenarios in RRE).
- Another Federal agency takes over, changing the management practices at the site.

Changes in anticipated funding / Federal Long-Term Stewardship support

- Budget cuts result in reducing activities required by the ROD (e.g., CERCLA 5-year review, review of effectiveness of institutional controls required by the O&M Plan, groundwater monitoring activities).
- Budget cuts result in reducing activities at the site; the activities that are eliminated are not ROD requirements (e.g., technologies to determine if truck leaves site with soil).
- OEPA or USEPA believes that DOJ has taken insufficient level of action following a violation of an institutional control.
- DOJ does not take any action following a violation of an institutional control.

Information management

- DOE does not provide required report (e.g., CERCLA 5-year review report, required monitoring data).
- Loss of, or loss of access to, a portion of the CERCLA Administrative Record (e.g., due to loss, mold, rats).
- Catastrophic event (e.g., flood, fire) destroys the CERCLA Administrative Record. Records not available if needed for litigation purposes or for understanding the actions taken at the site and the rationale for those actions.
- Loss, or loss of access to a portion, of the CERCLA Information Repository.
- Catastrophic event (e.g., flood, fire) destroys entire CERCLA Information Repository.

Perception

- Post-closure construction workers or site employees get sick and think it's due to work they perform (or performed) at the 1998 Mound Plant Property.

Exhibit 9 to this LTS Plan contains the DRAFT Uncertainty Matrix compiled to-date. This matrix is subject to change, based upon future discussions between DOE and its regulators. However, the draft matrix is included in this LTS Plan in order to demonstrate the depth and complexity of discussions that DOE has been having with its regulators and stakeholders on the subject of risk and uncertainty management. A final Uncertainty Matrix will be included in a future DOE-MCP Uncertainty Management Report that will be published in 2003.

4.3 Contingency Plans/Emergency Response

This section of the LTS Plan identifies the criteria that would require implementation of contingencies, describe how data will be interpreted, and the possible responses and reporting procedures, including public notification requirements. If appropriate, the LTS Plan should include a discussion of onsite or offsite areas that are subject to an environmental release and the contingency measures in place.

The **DOE** draft O&M Plan outlines, in general terms, the steps DOE would take if it discovered a potential violation of an institutional control (e.g., the installation of a new groundwater monitoring well on the 1998 Mound Plant Property). There will likely be several DOE response

protocols developed as the 1998 Mound Plant Property draws nearer to site closure. The need for such protocols has already been identified as a result of the aforementioned uncertainty analysis that the DOE initiated in early-2002. Refer to **Exhibit 9** (DRAFT Uncertainty Matrix) to this LTS Plan for a summary of possible future DOE contingency plans, relative to those uncertainty scenarios that carry the greatest probability of occurrence and/or the greatest impact. DOE will not begin developing individualized contingency plans in earnest until the uncertainty analysis report has been finalized. However, in the near-term, the DOE plans to work closely with the regulators to refine the draft O&M Plan which, at present, outlines a general DOE response protocol. The final Uncertainty Analysis Report is being structured to act as a DOE tool to focus resources on the most likely and high impact scenarios. In the upcoming contingency planning sessions, DOE and its regulators will focus on proactive methods to assist in implementing effective institutional controls (versus solely focusing on corrective measures that should be taken in the event that an institutional control fails).

In general terms, the DOE could learn of a potential institutional control violation during the assessment of the effectiveness of institutional controls, conducted in accordance with the O&M Plan. However, DOE may also learn of a potential violation through other sources. For example, a member of the community may see a dump truck containing soil leaving the 1998 Mound Plant Property, or a tenant at the MATC may see that a groundwater well has been installed nearby. Assuming such parties advise DOE of the potential violation, or third party contacts DOE on behalf of the person who identified the potential violation, the DOE could then investigate the situation. Once DOE learns of a potential institutional control violation, DOE would notify the USEPA, OEPA and ODH. The first decision that DOE must make is whether or not an institutional control was violated. If, for example, regulatory approval was granted to remove soil from the 1998 Mound Plant Property, then an institutional control violation has not occurred. Regardless of whether a violation has, or has not, occurred, DOE would notify the USEPA, OEPA and ODH of the outcome of its investigation, and would document findings from the investigation in the next-scheduled report on the effectiveness of the institutional controls.

If DOE determines that an institutional control has been violated, the DOE would first ask the violator to discontinue or rectify his/her action. The DOE would also notify the USEPA, OEPA and ODH of the violation. The DOE may also refer the matter to the U.S. Department of Justice (DOJ) for enforcement. The DOJ could take immediate action by seeking an injunction or compensatory and/or punitive damages; or the DOJ could choose to take no action; or the DOJ could choose to delay action, pending the results of further investigation. DOE has no control over DOJ's actions (i.e., in terms of the timeliness of DOJ's action, whether DOJ takes action, or whether DOJ's action is deemed appropriate by other parties [e.g., State of Ohio, City of Miamisburg]). DOE would document the referral to DOJ, and DOJ's action(s), in the next-scheduled report on the effectiveness of the institutional controls; DOE would also notify the USEPA, OEPA and ODH when DOJ reaches a decision/takes action on the referral.

The USEPA and the State of Ohio have authority to take legal action against DOE through the ROD. The State of Ohio also has the authority to take legal action against the property owner, through the State's granted enforcement authority over the deed restrictions. If the DOE chooses to take no action (e.g., DOE does not refer the matter to the DOJ), or the DOE (or DOJ) action is deemed unacceptable by the State of Ohio, the State still has legal recourse through the State Attorney General. The State Attorney General may also be open to coordinating legal efforts with the DOJ.

It is important to recognize that this LTS Plan is based on parcel-specific Residual Risk Evaluation (RRE) and Record of Decision (ROD) documents which, in turn, are based on the end-state that DOE will leave the property in, after completing the cleanup. In other words, it is

not possible for DOE to describe, in those CERCLA documents, contaminants that may be discovered at a later date. If the DOE was aware of those contaminants in the first place, the contaminants would have been identified as a Potential Release Site (PRS) and evaluated under the current Mound 2000 process. Therefore, this LTS Plan does not attempt to speculate on “what if?” scenarios related to the potential for potential future pockets of contamination at the 1998 Mound Plant Property. As stated previously in this LTS Plan, the DOE is responsible, under CERCLA, to respond to any releases of hazardous substances (that are attributable to previous DOE operations) that may occur after parcels from the 1998 Mound Plant Property have transferred from Federal government ownership. An example of this might be the discovery of a buried drum, years from now, when a property owner undertakes an excavation project.

There is both a direct, and an indirect way, to invoke DOE response action under the CERCLA statute. The direct method is defined under CERCLA 105(d), which allows any person who is, or may be affected, by a release of a hazardous substance/pollutant/contaminant to petition the President of the United States to conduct a preliminary assessment of the hazards. Under Executive Order (E.O.) 12580, Superfund Implementation, section 3(a), DOE [rather than the President] would be the party to whom the petition would go. Of course, any person can also call the USEPA’s National Response Center (1-800-424-8802) directly with a concern about a release. However, the indirect way to invoke CERCLA, which is described in the following paragraph, is the easiest way for a concerned party to draw attention to a potential problem at the 1998 Mound Plant Property (**NOTE:** the term “easiest” is used in the context of a process that is already well-understood by all citizens of the United States; specifically, the 9-1-1/*First Response* system). The removal authority of CERCLA kicks in when USEPA or DOE is notified. CERCLA section 101(23) describes “removal” to include assessing or evaluating the release or threat of release, and responding to it in order to protect human/public health and the environment. E.O. 12580 gives DOE the authority to do removals.

Knowing the history of the 1998 Mound Plant Property, it is understandable that if a buried drum is unearthed, there is a possibility that the drum could contain hazardous substances, including radioactive contamination. There is no emergency protocol, per se, defined in Mound’s Federal Facility Agreement or the Mound 2000 Work Plan. Therefore, **Exhibit 10** to this LTS Plan includes a basic Emergency Response Action Plan; this action plan could be followed by any party (e.g., member of local community) in the event that unknown conditions arise at the 1998 Mound Plant Property. Note that the first line of response should always be a call to the City of Miamisburg Dispatcher (i.e., 9-1-1 call). City Fire and Police Department personnel have received basic training in securing the scene (e.g., setting up barricades and postings) to isolate the scene and requesting support from local subject matter experts (e.g., Ohio EPA 1-800 # for spills). The DOE does have a Radiological Assistance Program (RAP), with regional offices located throughout the United States. The sole purpose of the regional RAP offices is to assist States with radiological response actions. The Region 5 RAP Office, located in Chicago, Illinois, is the closest regional office to Miamisburg, Ohio, and would be the office that could dispatch a RAP Team to the 1998 Mound Plant Property, if conditions warrant. However, after the DOE completes the CERCLA cleanup at the 1998 Mound Plant Property, the site should be treated like any other industrial property – the first line of defense is the City of Miamisburg, the second line of defense is the State of Ohio, and the third line of defense is the Federal government.

The State of Ohio is in the process of developing its own emergency response protocols, given that radiological emergencies (with the exception of water) are within the jurisdiction of the Ohio Department of Health, and all other response actions are within the jurisdiction of the Ohio EPA. Furthermore, State personnel (in Columbus, Ohio) who operate the 1-800 Spills Hotline

know to call the Ohio Department of Health, Bureau of Radiation Protection, when calls to the hotline pertain to the 1998 Mound Plant Property (or when calls that pertain to the State of Ohio, as a whole, have the potential to involve radioactive materials). This LTS Plan does not address jurisdictional issues within the State of Ohio and, in fact, such issues are not important to successful implementation of the basic Emergency Response Action Plan outlined in **Exhibit 10**. Once the first responder (i.e., Police/Fire Department of the City of Miamisburg) report an incident at the 1998 Mound Plant Property to the State of Ohio, the State will decide which organizations and personnel should report to the scene for further investigation. The action plan in **Exhibit 10** contains the 24-hour emergency notification numbers for the OEPA and the Ohio Department of Health. In the event of a spill or other incident at the 1998 Mound Plant Property, the OEPA is the lead agency within the State of Ohio for response action.

As the LTS Steward for a number of former DOE sites, the DOE Grand Junction Office maintains a 24-hour toll-free number. This number is primarily for use by State personnel, so that they can consult with DOE personnel at the Grand Junction site, before deciding if the DOE regional RAP office needs to be called to the scene. The DOE Grand Junction office can also assist the State with dispersal calculations, with the review of records associated with the 1998 Mound Plant Property, or with any other items that require consultation with a DOE official.

At a minimum, the Emergency Response Action Plan in **Exhibit 10** will be provided to the City of Miamisburg Police and Fire Departments, the OEPA, ODH and USEPA, the MMCIC (i.e., the current property owner), the DOE Region 5 RAP office, and the DOE Grand Junction Office. The Emergency Response Action Plan is an example of the sort of information that needs to be included in Information Management and/or Public Participation components of the LTS program at the MCP.

5.0 INSTITUTIONAL CONTROLS AND LAND USE

5.1 Institutional Controls

This section of the LTS Plan describes the institutional controls being implemented and maintained as part of the LTS program, any other use/access restrictions required to maintain protectiveness, and any controls applied to off-site properties that are required for the remedy. An explanation of the surveillance and maintenance activities by which effectiveness will be monitored is also provided, including such things as inspection objectives, frequency, reporting requirements, and any quality assurance, corrective action or emergency response plans.

For detailed information on the institutional controls applied to land parcels transferred to-date, readers should consult the parcel-specific CERCLA documents, primarily the Residual Risk Evaluation (RRE) and the ROD. In addition, the draft O&M Plan (which is not yet ready for public review and comment) defines the DOE requirements to monitor and enforce the institutional controls. The purpose of this LTS Plan is to provide a summary of the DOE approach to institutional controls at the 1998 Mound Plant Property. As stated previously, the DOE Headquarters is currently developing a policy on the use of institutional controls. The current draft of the policy defines “institutional controls” as mechanisms designed to limit access to, or uses of, land or facilities; to protect cultural and natural resources; to maintain physical security of the DOE facilities; and to prevent or limit inadvertent human and environmental exposure to residual contaminants. The main focus is on non-engineered administrative restrictions and physical controls (e.g., monuments, markers, signs, fences) used to limit activities, access, or exposure to land, groundwater, surface water, waste, or waste disposal areas and other geographic areas or environmental media. Collectively, these controls are often

referred to as “land use controls” whose purpose is to protect human health and the environment and to supplement and bolster the integrity of engineered environmental remedies. It is important to remember that if the performance objective(s) of the remedy are met (i.e., protection of human health and the environment), the remedy is deemed effective. Even in the event that an institutional control fails, if the remedy remains protective of human health and the environment, the performance objective(s) of the remedy have been met.

For land parcels transferred to-date at the MCP, the remedy is institutional controls in the form of deed restrictions. Thus far, there have been three distinct deed restrictions associated with each land parcel. Each deed restriction constitutes an institutional control, and is enforceable at the 1998 Mound Plant Property because the deed restriction is included in the ROD as well as the quit claim deed for each parcel. Other LTS activities described in this LTS Plan, or included as exhibits to this document, are examples of possible additional land use controls (although such land use controls would not be enforceable by the DOE because they are not included in the ROD or the quit claim deed; such land use controls may be enforceable by non-DOE parties).

The quit claim deed for each land parcel informs the property owner of the deed restrictions. The quit claim deed also reserves an easement for the DOE, USEPA, OEPA and ODH to enter onto the transferred land in conjunction with the deed restrictions, and for the purposes of any future response action under CERCLA (e.g., if contamination attributable to DOE operations is discovered on transferred parcels [**NOTE:** such contamination does not include new contaminants introduced to the property by the property owner, or any other party]). The DOE reserves for itself, and grants to the State of Ohio, enforcement authority of the deed restrictions, as well as the authority to recoup costs (including legal fees) from a violator of a deed restriction. The quit claim deed affirms that delays in enforcing, or failure to enforce, the deed restrictions by DOE, or the State of Ohio, do not constitute a waiver of the deed restriction or the ability to enforce in the future. The deed restrictions remain “attached” to the land parcel through subsequent property transfers. The quit claim deed references the Environmental Summary – CERCLA 120(h) Notice of Hazardous Substances, which is the final document prepared under the Mound 2000 process for transfer of property. As an exhibit to the quit claim deed, the Environmental Summary is a critical piece of information that must be passed on to subsequent property owners to ensure that “corporate memory” is retained on the rationale behind each deed restriction. By recording the quit claim deed (including the CERCLA Environmental Summary) with the Montgomery County Recorder’s Office, this ensures that future property owners are aware of the deed restrictions associated with the 1998 Mound Plant Property.

The first deed restriction applied to land parcels transferred to-date pertains to the removal of soil from the 1998 Mound Plant Property without prior written approval from the OEPA and ODH. **Exhibit 11** to the LTS Plan is the protocol that OEPA and ODH will follow, once the State of Ohio receives a request from the property owner to remove soil from the 1998 Mound Plant Property. Attorneys for DOE, USEPA and Ohio EPA have all reviewed the enforcement authority language in the quit claim deed for all parcels transferred to-date. There must be a scientific basis for allowing soil to be removed from the 1998 Mound Plant Property. No approval will be given unless contaminants in the soil are below radiological background levels and hazardous constituents are not present. As the OEPA is structured today, the decision authority for removal of soil from the 1998 Mound Plant Property resides within the Office of Federal Facilities Oversight, Southwest District Office, located in Dayton, Ohio. The DOE has the ultimate responsibility for the residual contamination currently located at the 1998 Mound Plant Property. As such, it is important that the DOE understand and document the process the OEPA and ODH will follow, through the State’s legal authority, to allow soil to be removed from the property. The protocol in **Exhibit 11** to this LTS Plan was developed by the State of Ohio because it is relevant to the soil removal deed restriction and is, therefore, of interest to the

DOE and users of this LTS Plan. The protocol was developed to assist and inform the public, and future property owners, of the actions needed to request the State's permission to remove soil from the 1998 Mound Plant Property.

The genesis of the second deed restriction applied to land parcels transferred to-date (i.e., land use shall remain industrial/commercial) stems from a series of open discussions between the regulators, DOE and other interested parties, including the public (see **Exhibit 1**, 1993 letter from the City of Miamisburg to the OEPA). The Proposed Plan and ROD for each land parcel state that land use will be for industrial/commercial use only. The RODs further detail specific land uses which will not be permitted onsite, but the list in the ROD is not meant to be all inclusive. Land parcels may not be used for any residential or farming activities, or any other activities that could result in the chronic exposure of children under 18 years of age to soil or groundwater from the premises. The Core Team recognizes that the term "chronic exposure" is not defined, per se, in the parcel-specific RREs or RODs issued to-date, and the team continues to actively discuss this issue.

For land parcels transferred to-date, restricted uses listed in the RODs include, but are not limited to:

- single or multi family dwellings or rental units;

- day care facilities;

- schools or other educational facilities for children under eighteen years of age; and

- community centers, playgrounds, or other recreational or religious facilities for children under eighteen years of age.

The third deed restriction applied to land parcels transferred to-date prohibits the extraction, consumption, exposure or use in any way of the groundwater underlying the premises, without the prior written approval of the USEPA (Region 5) and the OEPA. **Exhibit 12** of this LTS Plan includes the protocol the USEPA and OEPA will follow, once the regulators receive a request from the property owner to install a groundwater well on the 1998 Mound Plant Property. As stated previously, the protocol in **Exhibit 12** was developed by the USEPA and OEPA because it is relevant to the groundwater usage deed restriction and is, therefore, of interest to the DOE and users of this LTS Plan. The protocol was developed to assist and inform the public, and future property owners, of the actions needed to request the regulators' permission to use groundwater on the 1998 Mound Plant Property.

The above language summarizes the three deed restrictions that apply to land parcels transferred to-date at the 1998 Mound Plant Property. Readers of this LTS Plan should consult individual parcel RODs for specific language on deed restrictions. RODs are part of the CERCLA Administrative Record (AR) that is already available to the public.

LTS monitoring systems at any DOE site generally consist of the technologies, methodologies and analyses used to monitor all aspects of remedy effectiveness. Thus far, the primary monitoring requirement for the 1998 Mound Plant Property is to monitor the effectiveness of the deed restrictions and to monitor the groundwater. An integrated groundwater monitoring plan will eventually be developed for the 1998 Mound Plant Property; the monitoring plan may be a stand-alone document, but it will be referenced in the final ROD and will be enforceable under the ROD. The integrated groundwater monitoring plan will detail which wells will be sampled

for what contaminants and at what frequency, as well as action levels and contingency plans.

The remedy for the transfer of the “Phase I” parcel will likely include a Monitored Natural Attenuation groundwater monitoring requirement. In addition, the Phase I ROD will likely call for monitoring of other specific wells for certain contaminants. The resulting Phase I groundwater monitoring plan would be the basis for the integrated (i.e., “site-wide”) groundwater monitoring plan, post-closure. Since this LTS Plan is written to cover only those parcels that been transferred to-date, it would be premature for any details on the Phase I parcel to be placed in this document. However, since the Phase I parcel transfer will likely include a groundwater monitoring plan, it is mentioned in this section of the LTS Plan.

The DOE recognizes that there needs to be a “link” between the various plans cited throughout this LTS Plan (e.g., O&M Plan, contingency plans, integrated groundwater monitoring plan). Such a link would be particularly important if the DOE contracts with different parties to implement individual plans. In such cases, a post-closure stakeholder group (such as the one referenced in Section 1.3, Stakeholder Involvement, of this LTS Plan) could provide a focal point for information flow between the DOE, the regulators, the City of Miamisburg, the property owner(s), and the general public.

Pursuant to the draft O&M Plan, DOE must periodically submit a report to the regulators (USEPA, OEPA and ODH) summarizing the status of the effectiveness of the institutional controls implemented at the 1998 Mound Plant Property. Currently, DOE performs this assessment on an annual basis. However, the parcel RODs state that the DOE can petition the regulators to decrease the assessment frequency (e.g., to every five years). The five-year reviews conducted by DOE, pursuant to section 121(c) of CERCLA, will also assess the effectiveness of the remedies. As stated previously, in September 2001, the DOE completed its first five-year review of the effectiveness of the OU-1 pump & treat remedy. If the pump & treat remedy needs to continue after DOE conveys the last parcel to the MMCIC, any O&M requirements associated with the pump & treat remedy will be added to the O&M Plan that pertains to land parcels that have completed the CERCLA 120(h) process for property transfer; this O&M Plan is sometimes called the “site-wide” O&M Plan.

A crucial part of this LTS Plan is monitoring and assessing the effectiveness of the plan itself. A post-closure stakeholder group, such as the PCSWG (which collaborated with DOE in the development of this LTS Plan) can also participate in the assessment and revision (if warranted) of this LTS Plan. The DOE periodic assessments of the effectiveness of institutional controls, conducted pursuant to the O&M Plan, and the DOE five-year reviews, conducted pursuant to CERCLA, can also provide a basis for assessing the effectiveness and efficiency of this LTS Plan.

As stated previously in this LTS Plan, the DOE is currently preparing an uncertainty analysis that will identify potential vulnerabilities in the institutional controls, and a range of possible contingency plans that are commensurate with risk and impact to human health and the environment (refer to **Exhibit 9** for the DRAFT Uncertainty Matrix). Institutional Controls are most effective when they are “layered.” This ensures that there are redundancies in the system, such that if one control fails, another control can ensure the remedy remains protective. Ultimately, it is the responsibility of the DOE to monitor, maintain and enforce the institutional controls, and it is the property owner’s responsibility to comply with the institutional controls. However, as a result of Post-Closure Stewardship Working Group meetings that have been held monthly since December 2000, several ideas have surfaced as future “layering” possibilities. This LTS Plan attempts to describe a comprehensive and community-based LTS effort, and adds layers, on top of what the O&M Plan requires, to help enhance the effectiveness of the

institutional controls. **Exhibit 13** includes a list of possible layering mechanisms arranged according to the organization that could best implement the action (e.g., Federal, State or local governments, other). Some of the mechanisms in **Exhibit 13** are already in existence. For example:

the DOE Grand Junction Office (i.e., future LTS Steward) has a 24-hour toll-free phone number that is designed to provide States with immediate consulting services in the event that an unusual or emergency situation arises at a former DOE site;

the Ohio Department of Natural Resources (ODNR), Division of Water, administers a publicly-available database of Water Well Log Reports for all groundwater wells installed in the State of Ohio;

the Ohio EPA, Division of Drinking and Groundwater, regulates all public drinking water wells that serve 25 people for more than 60 days a year, and the OEPA requires all well-drillers to provide a copy of the property deed;

the Montgomery County Combined Health District has a program for approving the installation of private water wells;

the City of Miamisburg has a street opening permit, a building permit, and an occupancy permit program;

the City of Miamisburg regulates all zoning within the city limits (refer to **Exhibit 6** for I-2 General Industrial District zoning);

the MMCIC currently incorporates deed restrictions imposed by the DOE on any property that the MMCIC leases to a third party/tenant of the MATC, thus holding the lessee accountable for compliance with those deed restrictions; and

the Mound Museum Association has indicated a strong desire to work with the DOE to house records associated with the DOE production-era and environmental cleanup (including LTS) programs at the 1998 Mound Plant Property.

However, some of the items listed in **Exhibit 13** include programs that do not currently exist, and which would require significant up-front planning and/or resources to develop. If implemented, some of the items listed in **Exhibit 13** would be enforceable at a local level. However, such items would not be enforceable by the DOE, and enforcement action (if any) taken by the cognizant local authority would simply enhance the DOE effort to maintain the effectiveness of the institutional controls. The below list is not meant to imply that any, or all, of the items will be developed over time, and is provided only to illustrate the nature of the discussions that the DOE has been having with the regulators, the City of Miamisburg, the MMCIC and other stakeholders on the subject of LTS planning and the monitoring & enforcement of institutional controls. Some examples of possible additional “layering” include:

the DOE Grand Junction Office (GJO) has already suggested to the DOE-MCP that, post-closure, when GJO personnel travel to the 1998 Mound Plant Property to review the effectiveness of institutional controls, the GJO personnel could schedule the review, to the extent practical, to coincide with a regularly-scheduled public meeting such as a Miamisburg City Council meeting. GJO personnel could then update City officials and the public on the preliminary results of the review of the institutional controls;

the DOE-GJO has already suggested to the DOE-MCP that, post-closure (and with the permission of the City of Miamisburg), the DOE could provide the City Income Tax Department with a one-page flyer that reminds all City residents and tax-payers of the deed restrictions that apply to the 1998 Mound Plant Property. Such a flyer may, in fact, reach a greater number of people than if the DOE published a notice in the local newspaper to coincide with the DOE review of the effectiveness of the institutional controls. DOE can always, of course, mail information directly to targeted stakeholders;

it may be advantageous to the Federal Government to pay the City of Miamisburg a nominal fee to cover the City's costs (e.g., postage fees) to keep the DOE Grand Junction Office on a mailing list for all upcoming public meetings on zoning issues. The City has already indicated to DOE that other non-City entities have made such an arrangement with the City in the past, so that those private parties can keep abreast of changing conditions within the City of Miamisburg;

a "regional" DOE office, located midway between all DOE sites in the State of Ohio, could provide near-real-time physical support to local and State officials in the event of an unusual or emergency situation (i.e., sooner than a DOE official could provide support if he/she had to travel from the Grand Junction Office);

an arrangement between DOE and the U.S. Postal Service or a private express-mail carrier, that would allow mail delivery personnel to take note of any suspicious activities on the site (e.g., removal of soil) during their normal mail delivery route each day;

a City of Miamisburg Overlay Zone for the 1998 Mound Plant Property, which would require all property owners within that zone to comply with defined requirements (e.g., soil cannot be removed);

a City of Miamisburg Planned Development for the 1998 Mound Plant Property, which would provide for an alternative to traditional zoning that would allow a "mix" of land uses and could also specifically exclude specific land uses (e.g., groundwater wells cannot be installed);

a City of Miamisburg Plat for the 1998 Mound Plant Property, where properties could be divided into smaller parcels, and the process would involve a review by City officials for such things as compliance with zoning and subdivision regulations;

a "Soil Management Plan," administered by the MMCIC, so that MATC tenants would have the flexibility to move soil throughout the industrial park site, without having to seek the regulators' approval to remove the soil from the 1998 Mound Plant Property, as a whole (essentially, one tenant needs soil removed, and another tenant needs fill-dirt – the MMCIC could coordinate the movement of soil between the two tenants' properties);

a MATC security program, including such things as fences, signs, video surveillance, and security guards; and

a "Neighborhood Watch" Program, where MATC tenants and property owners in the vicinity of the 1998 Mound Plant Property could monitor compliance with deed restrictions imposed on the site.

One of the items listed on **Exhibit 13**, a 1-800 “Call Before You Dig” Program, may be particularly useful to the DOE Long-Term Stewardship program at the 1998 Mound Plant Property. This program is administered by the Ohio Utilities Protection Service (OUPS), and the program provides a communication link between any party who wishes to excavate soil and the party who subscribes to the OUPS service. This is accomplished by using a latitude and longitude grid database. The subscriber creates a unique service area database, using the grid system. The grids are based off of U.S. Geological Survey (USGS) maps. The OUPS computer system uses the grid selections to screen the locations of incoming excavation requests. Based on the selected grid, the computer system is able to notify all subscribers whose service areas fall within that grid. OUPS subsequently notifies affected subscribers by computer print-out or e:mail, and it is up to the subscriber to determine if the excavation should be allowed to proceed without taking any special precautions (such as advising the party who wishes to excavate that removal of soil is prohibited without prior approval from the regulators). As is the case with many of the items listed in **Exhibit 13**, any 1-800 “Call Before You Dig” Program relies on the honesty of people actually calling the 1-800 number before initiating excavation.

In some cases, the DOE would need to formalize an arrangement with a third party, in order to implement some of the items listed on **Exhibit 13**. For example, if the DOE would like the Montgomery County Combined Health District to “flag” permit applications for the installation of a private water system on the 1998 Mound Plant Property, this would require up-front coordination between the DOE and the County. DOE-MCP has already initiated a dialogue with the Montgomery County Combined Health District, and the County was receptive to the DOE request to flag permit applications that fall within the boundaries of the 1998 Mound Plant Property. At the County’s request, the DOE is in the process of developing an informational packet for the County, describing the geographic area(s) to which the deed restriction prohibiting installation of groundwater wells applies. The informational packet provided by the DOE to the County will also describe the rationale behind the deed restriction. The County volunteered to forward any information that it receives from DOE to local well-drilling firms. The DOE could also provide such written notifications directly to the well-drilling firms, since the names and mailing addresses of these firms are readily available on the ODNR’s website. DOE-MCP has also initiated a dialogue with the Ohio EPA, Division of Drinking and Groundwater, regarding the State’s regulation of public drinking water wells that serve 25 people for more than 60 days a year. An important component of the State’s program is its requirement for all well-drillers to produce a copy of the property deed (wherein any deed restrictions lie). The OEPA Division of Drinking and Groundwater was also receptive to receiving an informational packet from the DOE that describes the geographic area(s) to which the deed restriction prohibiting installation of groundwater wells applies, and the rationale behind the deed restriction.

It is important to recognize that if State or County officials are reluctant to actively partner with the DOE in monitoring compliance with any of the deed restrictions applied to the 1998 Mound Plant Property, the records maintained by the State and County are public records, and the information contained therein could still be useful to the DOE. For example, during the DOE periodic reviews of the effectiveness of institutional controls, the DOE could review the County’s permit records to see if approval was granted to install a private water system on the 1998 Mound Plant Property. This information would not be used by the DOE to take action against the County, since it is the property owner’s responsibility to comply with the deed restrictions imposed on his/her property. However, the DOE could use the information contained in the County’s records (albeit after-the-fact) to identify specific areas on the 1998 Mound Plant Property where the groundwater deed restriction has potentially been violated. The DOE is already using a similar approach, by periodically reviewing the City of Miamisburg’s permit

files, and reporting the results of those permit reviews in the DOE report on the effectiveness of institutional controls. Such a review of the City of Miamisburg records, by the DOE, is a requirement under the draft O&M Plan.

The following exhibits are an expansion of some of the items described in **Exhibit 13**. Any or all of the listed items could provide the DOE with valuable information to determine if there is a potential for a violation of an institutional control. Such information is critical to the successful completion of the DOE requirement in the draft O&M Plan to assess the effectiveness of institutional controls:

Exhibit 14 provides information from the ODNR, Division of Water, website on the requirement to file Water Well Log Reports, and the searchable database for Water Well Log Reports (<http://ohiodnr.com/water>);

Exhibit 15 provides information on the OEPA, Division of Drinking and Groundwater, program to regulate all public drinking water wells that serve 25 people for more than 60 days a year;

Exhibit 16 provides a blank ODH Application/Permit for Private Water System which, for the 1998 Mound Plant Property, is a program administered by the Montgomery County Combined Health District;

Exhibit 17 provides a blank City of Miamisburg Application and Permit for Street Opening (shows if excavation may occur in a street right-of-way) ;

Exhibit 18 provides a blank City of Miamisburg Building Permit Application (shows if a building is used for residential, industrial/commercial, etc.); and

Exhibit 19 provides a blank City of Miamisburg Certificate of Occupancy (shows if a building is used for residential, industrial/commercial, etc.).

The LTS organizational system is the infrastructure of personnel, policies and processes that support the design, implementation, management, and periodic assessment of the entire LTS program. It could be based in a DOE or other Federal, or State or Local government agency, quasi-governmental agency, private party or any combinations thereof. There are many organizations with a vested interest in ensuring the effectiveness of the institutional controls at the 1998 Mound Plant Property. The items discussed in this LTS Plan (including **Exhibit 13**) can work independently to enhance the effectiveness of the deed restrictions at the 1998 Mound Plant Property. However, ultimately, it is the responsibility of the DOE to monitor, maintain and enforce all institutional controls, and it is the property owner's responsibility to comply with the institutional controls.

5.2 Land Use Planning/ Implementation

This section of the LTS Plan addresses land use planning aspects not specifically addressed as institutional controls, and provides (or references) a graphical representation of current and anticipated future land use, including such information as land use maps, land use definitions and land use policies.

On behalf of the DOE Office of Community and Worker Transition, the Economic Development Administration (within the U.S. Department of Commerce) approved the MMCIC's "Comprehensive Reuse Plan" (CRP), dated January 1997, as a viable Community Transition Plan. The CRP includes plans for new construction on the 1998 Mound Plant Property, once DOE transfers ownership of property to the MMCIC. The DOE has used the CRP, on a number of occasions (e.g., in NEPA documents), as a means to reasonably "bound" what future land use at the site may look like. Of course, in the unlikely event that the MMCIC is unsuccessful in transitioning the site into a viable commercial industrial park, land uses described in the CRP may not come to fruition. However, the DOE does not consider this a problem, because the site would still be under the jurisdiction of the City of Miamisburg (e.g., property would still be subject to I-2 Industrial zoning [see **Exhibit 6**]). The MMCIC is currently in the process of updating its CRP, and readers of this LTS Plan are encouraged to learn more about the CRP by accessing the MMCIC's website at www.mound.com. The CRP contains narrative descriptions and maps or architectural drawings that illustrate future land use at the 1998 Mound Plant Property. As referenced in Section 2.4 of this LTS Plan, the MRC's Interim Land Use Policy (see **Exhibit 5**) is an important component of land use decision-making for those properties that DOE has declared excess to its needs, however, those properties are currently under DOE ownership. Such properties have, in the past, been leased by the DOE to the MMCIC in an effort to facilitate the MMCIC's efforts to market the site to industrial park tenants. For DOE-leased properties, the MRC's Interim Land Use Policy has proven effective at bounding land use. After property at the 1998 Mound Plant Property has been transferred from Federal government ownership to the MMCIC, the City of Miamisburg's I-2 Industrial zoning requirements apply.

6.0 REGULATORY MANAGEMENT

This section of the LTS Plan provides the regulatory and institutional framework for LTS, including all LTS activities that are specifically required by Federal, State or local regulations, Federal Facility Agreements, Records of Decision, or other third-party enforceable agreements.

At the present time, the regulatory framework that the 1998 Mound Plant Property Long-Term Stewardship program operates within includes:

- the CERCLA statute, which requires compliance with "Applicable or Relevant and Appropriate Requirements" (ARAR);

- tri-party Federal Facility Agreement between the DOE, USEPA and OEPA, dated July 15, 1993;

- "Work Plan for Environmental Restoration of the DOE Mound Site, the 'Mound 2000' Approach," dated August 1998;

parcel-specific Residual Risk Evaluations (RRE), Proposed Plans, Records of Decision (which include a list of ARARs) and Environmental Summaries;

quit claim deeds for land parcels, binding upon each successive property owner;

“Sales Contract by and between the DOE and the MMCIC,” dated January 23, 1998;

10 CFR 1021, National Environmental Policy Act (NEPA); and

10 CFR 1022, Compliance with Flood plain/Wetlands Environmental Review Requirements.

Some DOE documents, generated in accordance with the above regulatory framework, that have not already been mentioned in this LTS Plan include:

“Environmental Assessment for the Commercialization of the Mound Plant,” and associated Finding of No Significant Impact (FONSI), dated October 26, 1994;

Categorical Exclusion (under 10 CFR 1021, Appendix A to Subpart D, Section A7) for Sale of the Mound Plant, dated December 8, 1995;

“Environmental Assessment [for the] Disposition of Mound Plant’s ‘South Property’,” and associated FONSI, dated June 18, 1999 (including Floodplain Statement of Findings, generated in accordance with 10 CFR 1022);

“Notice of Floodplain Involvement for the Transfer of the ‘South Property’ at the Miamisburg Environmental Management Project, dated January 12, 1999;

“Notice of Floodplain Involvement for the Transfer of ‘Parcel H’ at the Miamisburg Environmental Management Project,” dated January 12, 1999;

“Floodplain Statement of Findings for the Transfer of ‘Parcel H’ at the Miamisburg Environmental Management Project,” dated April 26, 1999; and

“Notice of Wetlands Involvement for the Transfer of Land [i.e., the ‘Phase I’ parcel] at the Miamisburg Closure Project,” dated November 27, 2002.

All of the above documents were placed in the CERCLA Public Reading Room, upon issuance by the DOE.

7.0 FUNDING AND HUMAN RESOURCE REQUIREMENTS

7.1 Funding

This section of the LTS Plan provides the basis for the anticipated costs of all LTS activities, including any assumptions used to develop the cost estimate, or for determining when sites/portions of the site will start and stop LTS activities. The discussion identifies those activities that are provided on a site-wide basis (e.g., site-wide fence maintenance), those activities that can be provided on a unit-cost basis (e.g., cost to monitor a single groundwater well); and those costs generated for activities at a specific portion of a site (e.g., costs associated with a specific groundwater plume, disposal cell, etc.).

DOE funding for LTS activities required by the CERCLA remedy at the 1998 Mound Plant Property is expected through the annual Congressional appropriations process. Historically, all required LTS activities have been sufficiently funded. It is the DOE responsibility to request an adequate amount of funding for LTS through the Office of Management & Budget (OMB) or Congress. DOE Headquarters continues to pursue, internally and with OMB and Congress, a general education/discussion of the particular attributes of LTS and the need for sufficient LTS funding. Stakeholders at the 1998 Mound Plant Property, and throughout the DOE complex, have suggested that the DOE should pursue other funding mechanisms that would not rely on the Congressional annual appropriation process.

The DOE-MCP prepared a life-cycle LTS Budget in April 2002; this budget is included in this LTS Plan. The below life-cycle budget is subject to change, as DOE-MCP draws closer to site closure. For example, DOE-MCP recognizes that the below budget does not call out a separate and distinct cost estimate for information/records management needs. However, it is the assertion of the DOE that such costs are embedded in the other LTS cost items called out in the current budget. If, at a future date, it becomes necessary to increase or decrease the LTS budget, based on newly-emerging information on information/records management or any other LTS costs, DOE will take the necessary steps to adjust the life-cycle budget. For now, however, the budget defined below is a reasonable starting point for initiating discussions with the DOE Grand Junction Office.

The narrative discussion and dollar amounts below are taken, verbatim, from the DOE April 2002 life-cycle LTS budget justification document, and have not been modified in any way (for the purpose of inclusion in this LTS Plan). Readers should recognize that the DOE has one opportunity, in the Spring of each year, to update life-cycle budget information in the DOE Integrated Planning and Budgeting System (IPABS). Therefore, in terms of the budget included in this LTS Plan, the next opportunity for DOE to adjust the budget, if warranted, will be in the Spring of 2003. Information contained in the below budget (e.g., references to site closure date, the ROD for the Miami-Erie Canal, technology demonstrations, or frequency of aerial surveys) represent the initial efforts by the DOE to describe the life-cycle costs, post-closure, associated with LTS requirements for the 1998 Mound Plant Property. Cost information gathered by DOE since April 2002, for example, indicates that the cost to perform a digitized aerial survey of the site is \$60K, whereas the cost to perform a simple fly-over of the site, in order to take two-dimensional photographs, is \$10K. The former survey results in digitized data, which can be automatically analyzed, and generate a report of topographical changes (e.g., excavation or “piling” of dirt), installation of groundwater wells or new buildings, and land use changes (e.g., multi-family dwellings, childrens’ playground). In comparison, the latter survey still provides information on topographical changes, but the “analysis” is performed by hand and there is no automatic report generation. The draft O&M Plan requires the DOE to perform annual aerial surveys. The DOE does not

intend to perform digitized aerial surveys on an annual basis; however, such surveys would be an important part of the five-year reviews required by CERCLA, or in order to confirm that an institutional control (IC) has been violated. Non-digitized aerial surveys would generally be conducted in the years in which the digitized survey is not conducted. The DOE plans to refine the below cost estimate during the April 2003 life-cycle budget update to include, at a minimum, the above cost information on aerial surveys.

Verbatim April 2002 LTS Budget justification

The Proposed Plan (a CERCLA document) for each land parcel transferred to-date to the MMCIC has included a cost estimate of \$5K/year for “maintenance of the deed restrictions for . . . Institutional Controls.” The MEMP was originally broken into ten (10) land parcels destined for eventual transfer to the MMCIC. Therefore, a cost estimate of \$50K/year, beginning in FY07 through 2070 (i.e., the arbitrary end-date in IPABS) was reported in “A Report to Congress on Long-Term Stewardship [LTS]” (DOE/EM-0563, January 2001). The \$50K/year (FY07-70) is consistent with costs reported in PBS # OH-MB-10, Regulatory Oversight & Site Support. In fact, at present, the only cost reported in OH-MB-10 (after FY06 year-end) is the \$50K/year to maintain the deed restrictions. However, it is important to recognize that the \$50K/year cost estimate includes only those costs the DOE would incur during maintenance of the Remedy (i.e., Institutional Controls in the form of Deed Restrictions) for individual land parcels. For example, the current Operation and Maintenance (O&M) Plan for the MEMP requires DOE to perform annual walk-overs of parcels, review City records (e.g., construction permits) and interview personnel. The results are documented in a report that is provided to the regulators. \$50K/year is a reasonable estimate of The DOE costs, post-closure, to send personnel to the site to perform the above activities, document same in a report, and distribute the report to interested parties.

However, there will be additional post-closure stewardship costs at the MEMP, since the Record of Decision (ROD) for the final land parcel will address [not only] maintenance of the Institutional Controls, but also “site-wide” issues such as the need for an integrated groundwater monitoring program. There may also be a ROD for “off-site” areas, such as the Miami-Erie Canal (although it may be a “No Action” ROD). The MEMP is currently paying ~\$308K/year for groundwater monitoring. This cost includes labor, supplies and sample analysis. However, once the MEMP enters the post-closure phase, the number of wells, sampling frequency, and range of analytes will be significantly less than under the current sampling regime. Therefore, the below cost estimate assumes post-closure groundwater monitoring costs will be ~\$154K/year (i.e., one half of the current cost). If other environmental media (e.g., soil, air) end up being included in the post-closure environmental monitoring program, the below cost estimate may need to be increased slightly. Another element of the below cost estimate is for the personnel (DOE or a contractor agent) who will be required to administer the post-closure stewardship program. Since the MEMP will have a draft ROD for the last parcel by December 31, 2006, there will be a flurry of activity throughout the remainder of FY07 as regulatory issues are completed (e.g., final ROD, Environmental Summary, de-listing of parcels, finalization of O&M Plan and/or LTS Plan). Accordingly, in FY07, the below estimate of \$300K covers the cost of three (3) full-time equivalents (FTE). These personnel will be critical in the first year after closure because the DOE will no longer have a pool of prime contractor personnel to rely on. Note that, beginning in FY08, the below cost estimate assumes that the cost for personnel will decrease to \$100K/year.

A potential vulnerability in the below cost estimate is that MEMP's current Baseline assumes that the Remedy (i.e., Pump and Treat [P&T]) for Operable Unit 1 (OU-1) can be dismantled before the MEMP enters post-closure stewardship (i.e., on or before December 31, 2006). However, if this assumption is incorrect, and the Pump and Treat Remedy needs to continue for some period of time after the MEMP enters the post-closure phase, the below cost estimate will need to increase by as much as \$41K/year for every year of P&T operation. This is the current (i.e., FY02) cost to operate the P&T system, including maintenance, spare parts and labor. The below cost estimate is conservative, in that it assumes the P&T may have to operate through FY18. The probability of this is extremely low, however, based on current OU-1 sample trends.

A second vulnerability in the below cost estimate is that it does not include costs to procure, operate and maintain technologies (e.g., portal monitors, video cameras, data-loggers) that could decrease the need for a manned presence at the site. For example, technologies may be available that can detect movement of soil offsite (an activity specifically prohibited by one of the Deed Restrictions) and immediately report same to the DOE, or its agent, so that corrective action can be taken. The MEMP is currently evaluating a range of technologies that could facilitate the post-closure stewardship monitoring program. However, the cost of these technologies is unknown. There will probably be a trade-off in costs, if suitable technologies are found. For example, the DOE may be able to spend less money on people (FTE), but may need to spend more money on replacement parts, maintenance, calibration, operator training etc. for technologies left in-place at MEMP after closure. At a minimum, the MEMP will probably perform some form of aerial survey, at a prescribed frequency, in order to detect changes in land use that may indicate a potential violation of a Deed Restriction (e.g., new construction always involves excavation of dirt -- although soil can be moved throughout the MEMP site without violating the Deed Restriction, soil cannot be moved offsite). Aerial survey data could provide DOE with a starting point, during investigations of potential Deed Restriction violations. In 1997, the cost to perform a (digitized) aerial survey of the entire site (the survey was never performed, however) was ~\$30K. A digitized survey is more expensive than a survey that entails aerial photographs only (the latter may only cost \$5-10K). However, since MEMP's Deed Restrictions are tied to geographic boundaries, having digitized aerial surveys (i.e., data capable of being downloaded to a GIS system) would provide more valuable information on changes in land use/potential violations of Deed Restrictions than simple aerial photos would provide. Once MEMP enters the post-closure phase (i.e., FY07), DOE may perform a (digitized) aerial survey to establish a "baseline." Thereafter, the aerial survey would probably be performed every five years, to coincide with the CERCLA-mandated five-year review of any Remedy. Therefore, in the below cost estimate, the \$30K cost estimate (FY's 08-18) is not a "per year" cost. A more likely scenario is that a survey will be performed in FY2013 and again in FY2018, at a cost of \$30K each time.

COST ESTIMATE (\$K/year)

Time frame	Maintaining Deed Restrictions	People (FTE)	Integrated Groundwater Monitoring	Pump & Treat	Technology costs
Present to FY06-end	\$50K	See Note 1	See Note 1	See Note 1	See Note 1
FY07	\$50K	\$300K	\$154K	\$41K	\$30K
FY08 thru FY18	\$50K	\$100K	\$154K	\$41K	\$30K See Note 2
FY19 thru FY70	\$50K	\$100K	\$154K	zero	\$30K See Note 2
FY71 and beyond	TBD	TBD	TBD	zero	TBD

Note 1: All of these cost categories are already covered by PBS's other than MB-OH-10. Therefore, these costs were not itemized for the LTS Budget, until the site enters the post-closure phase (i.e., beginning second quarter of FY07).

Note 2: \$30K is not a "per year" cost in the above table. It is the cost to perform a single (digitized) aerial survey. A reasonable assumption is that these surveys may be performed every five years (e.g., FY's 13, 18, 23, 28, etc.) until such time as all new construction has been completed and the site is a fully-functional/fully-occupied commercial industrial park. At this point, further aerial surveys would have limited value, and may be performed on a less frequent basis (or eliminated entirely).

End of Verbatim April 2002 LTS Budget justification

7.2 Human Resources

This section of the LTS Plan describes the human resource needs, including all technical functions and qualifications necessary for the technical implementation and administration of LTS activities. In addition to the general staffing resources outlined in the above (April 2002) LTS Budget, the issue of technical qualifications of personnel associated with the LTS program have yet to be defined fully. This issue will be the subject of future discussions between DOE-MCP, DOE Headquarters and the DOE Grand Junction Office. However, at a minimum, personnel qualifications will likely include an Environmental Scientist or Engineer and an administrative support person. These personnel needs do not necessarily mean that individuals possessing these skills sets will be full-time (40 hour/week), nor do they mean that the individuals performing this work must be DOE/Federal government personnel, or that such personnel must be physically located at the 1998 Mound Plant Property or even within the State of Ohio.

8.0 INFORMATION/RECORDS MANAGEMENT

This section of the LTS Plan summarizes procedures for the two key types of site-related information: 1) records that document past operations and activities; and 2) monitoring data generated as a part of the LTS program. The LTS Plan also identifies which records will be archived in a permanent repository and include a description of “LTS-Critical” information, methods to preserve information, storage and archiving of LTS records, records retrieval and migration, and public access systems.

The LTS information management/records management system is the vehicle that gathers, stores, and disseminates the information associated with the site and its LTS program components. It consists of the information that is being preserved; the hardware/software/media used to gather, store and disseminate the information; and the associated protocols and processes required to ensure that the information/records management system is working properly. The information could include site characterization and remediation reports, maps, technical data sets, legal documents (e.g., leases, deeds, FFA), signatures, personnel records, communications, monitoring data, operations history, photographs and as-built drawings or blueprints. This information could be in hard copy or electronic forms, or both.

The details of an LTS information/records management system at the 1998 Mound Plant Property are still being developed. A data needs assessment has been conducted which outlines information desired by a variety of user groups, how each user group wants to access that information, and in what form/media they wish to find that information. In April 2002, DOE-MCP published the “Mound Site Assessment of Post-Closure Data Needs.” DOE-MCP’s next step is to implement the recommendations in the April 2002 report. **Exhibit 20** to this LTS Plan includes a table from the data needs report that summarizes the data needs by the following user groups: general public, real estate transactions, regulatory compliance, City of Miamisburg, DOE Headquarters, and former site worker. A complete copy of the April 2002 data needs report can be downloaded from the DOE website for the 1998 Mound Plant Property (www.doe-md.gov) at the Long-Term Stewardship link.

DOE is required to maintain a copy of the CERCLA Administrative Record (AR), pursuant to its Lead Agency status as authorized by Executive Order 12580, Superfund Implementation. DOE records schedules allow for destroying the AR 75 years after termination of the FFA. At that point in time, the USEPA has the option to request the AR, and DOE must relinquish the AR to USEPA. One of the action items the Core Team has, and which it will pursue as time permits, is a discussion of when the FFA can be terminated. Termination of the FFA can occur when the agreement has been completed to the satisfaction of the USEPA and OEPA. The termination date starts the “clock” for several things, including the required retention span for the AR. USEPA and OEPA have the option of requesting the AR documents at that point in time, and DOE must relinquish the documents to the regulators. As required by the FFA, DOE will also make available the CERCLA “Information Repository” documents (i.e., all documents that do not belong in the AR, however, they support documents contained in the AR) for ten years past termination of the FFA. The FFA and CERCLA regulations also state that DOE shall establish and maintain an administrative record at or near the Mound Plant. A DOE-EH RCRA/CERCLA Information Brief on the Administrative Record, dated November 1999, states “. . . additionally, the Administrative Record must be maintained at a central location (e.g., the nearest area or field office for the site).” Currently, the AR for the 1998 Mound Plant Property is housed in the CERCLA Public Reading Room located in downtown Miamisburg, Ohio. DOE has committed to maintain a copy of the CERCLA Administrative Record in a

local facility. However, this does not mean that the DOE plans to fund a post-closure “museum,” nor does it mean the AR will continue to be housed at its present location. The DOE is receptive to partnering with the Mound Museum Association to house at least a portion (i.e., CERCLA Administrative Record) of the full body of DOE records associated with the 1998 Mound Plant Property.

Several suggestions have been offered by the Post-Closure Stewardship Working Group to the DOE, throughout the development of this LTS Plan, and **Exhibit 21** contains a list of suggestions gathered to-date. This list has, by no means, been endorsed by the DOE-MCP as a set of requirements for an effective LTS program. However, the DOE wanted this LTS Plan to include all of the suggestions offered by the City of Miamisburg, the MMCIC and other stakeholder groups, in order to demonstrate the complexity and breadth of discussions that have occurred throughout the development of this LTS Plan. As time permits, the suggestions outlined in **Exhibit 21** will be carefully considered by the DOE-MCP, in the context of guidance or policy set by DOE Headquarters and within anticipated budget allotments.

DOE-MCP is just beginning to tackle the issue of defining what constitutes an “LTS-Critical” record. DOE Headquarters is in the process of developing an LTS Records Management Policy, and the DOE-MCP and DOE Ohio Field Office have been very involved throughout the development of this new policy. Once issued, this policy will firmly establish The DOE objectives to protect LTS records, at the same time, making those records available to interested parties. DOE Headquarters is considering very complex issues as it develops the new policy (e.g., should LTS records be stored at single repository? should LTS records be treated any differently than any other DOE record? what process should sites follow, if a third party [e.g., local museum] requests a copy of the LTS records? should all records be digitized and placed on the internet, or are indexed paper copies of records sufficient? should GIS/digitized mapping capability be maintained, post-closure?). Until DOE issues the LTS Records Management Policy, the DOE-MCP will not obligate resources that could result in DOE actions that are non-compliant with the new policy. In the interim, **Exhibit 22** to this LTS Plan includes an excerpt, entitled “Post-Closure,” from the DOE Ohio Field Office “Records Management Program, A Management Guide” (dated March 2001). The DOE-OH records management guide governs all actions taken to-date by the DOE-MCP, with respect to records disposition and planning for post-closure.

9.0 PUBLIC PARTICIPATION

This section of the LTS Plan identifies specific activities that involve the public, such as maintaining land use planning documents and records, enforcing use and access restrictions, providing maintenance and/or surveillance support (e.g., conducting visual surveys of fences, cap integrity), and communicating to the LTS Steward any changes in land use that may impact the LTS activities (e.g., re-zoning for industrial or residential use). The LTS Plan also describes the plan for community involvement, including roles and responsibilities during LTS plan development, modification, and implementation. The LTS Plan could also include the key points at which public meetings will be held, specific activities requiring community involvement, the extent to which DOE will rely on communities to provide assistance in maintaining institutional controls, etc.

A previous section of this LTS Plan (Section 1.3, Stakeholder Involvement during LTS Plan Development) describes the process that DOE will follow to modify this LTS Plan. DOE-

MCP clearly recognizes that public education is an important piece of keeping the knowledge alive about the 1998 Mound Plant Property and ensuring the effectiveness of the land use controls. The FFA requires DOE to develop a Community Relations Plan, and to update the plan on an annual basis. Another way that DOE could educate the public about the LTS program at the 1998 Mound Plant Property is by publishing an annual notice in the local newspaper that reminds citizens of the former DOE site operations and subsequent closure, the ensuing environmental cleanup, and final transition of the site to the local community for purposes of economic development. The public notice could include a description of the remediation decision-making process and the institutional controls imposed by the remedy. The notice could also announce the availability of the DOE report on the effectiveness of the institutional controls, and include contact information for the DOE Steward that is responsible for LTS at the 1998 Mound Plant Property. Further efforts within the PCSWG are underway to identify public education opportunities.

A suggestion offered by the City of Miamisburg, on a previous draft of this LTS Plan, encourages DOE to consider making annual presentations to the Miamisburg City Council (post-closure). These presentations could coincide with DOE Grand Junction's scheduled review of the effectiveness of institutional controls. The City also suggests that DOE conduct an annual mailing (one-page flyer) to all MATC tenants or property owners, reminding them of the institutional controls applied to the 1998 Mound Plant Property, and their obligation to abide by those controls (i.e., deed restrictions).

The Mound Museum Association, a non-profit organization, is in the process of establishing a museum at the 1998 Mound Plant Property. The museum could play a valuable role in the public education component of the LTS program at the 1998 Mound Plant Property. For example, the museum could house the CERCLA Administrative Record. This would give interested parties a single place to go to, in order to learn more about the operational history of the former DOE Mound Plant as well as the environmental cleanup that occurred after Plant closure.

Exhibit 21 to this LTS Plan includes a list of information/records management ideas currently being considered by the PCSWG. This list does not imply that DOE will fund any, or all, of the ideas. Rather, the list is meant to stimulate discussion between the DOE and other users of LTS information, and to demonstrate the breadth and complexity of discussions DOE has held to-date with the regulators and stakeholders on the subject of public participation.

10.0 CULTURAL, NATURAL, AND HISTORIC PRESERVATION

This section of the LTS Plan describes the natural and cultural resources that will need to be managed as a part of the LTS program, including any biological resources, threatened and endangered species, archeological and cultural resources, Native American treaty rights, and/or other site-specific natural and cultural resource issues.

With respect to the above LTS Plan components, at the 1998 Mound Plant Property, there are no threatened or endangered species, or critical habitats. This has been confirmed by several agencies, including the U.S. Fish & Wildlife Service, Ohio Department of Natural Resources, and Dayton Museum of Natural History. Previous DOE NEPA documents, such as those referenced in Section 6.0 of this LTS Plan, contain copies of all correspondence received from the above agencies on this subject.

There are no cultural resources at the 1998 Mound Plant Property, as confirmed by the Ohio Historic Preservation Office and other subject matter experts. Again, copies of correspondence received from the above agencies and/or subject matter experts can be found in the NEPA documents referenced in Section 6.0 of this LTS Plan.

There are 0.117 acre of jurisdictional wetlands on the 1998 Mound Plant Property, as documented in the "Delineation of Federal Wetlands and Other Waters of the U.S. [at the 1998 Mound Plant Property]," dated August 1999. In November 1999, the U.S. Army Corps of Engineers (USACE) concurred on the subject wetlands delineation, and the DOE has taken all necessary actions to preserve those wetland resources (refer to Section 6.0 of this LTS Plan for a list of wetlands documents developed pursuant to 10 CFR 1022, Compliance with Floodplain/Wetlands Environmental Review Requirements). In the wetlands delineation, the USACE categorically eliminated any of the roadside ditches on the 1998 Mound Plant Property as regulated waters, even though those ditches supported hydrophytes (wetland plants). The ditches were eliminated because none appeared to be created along natural streams, or as relocations of natural streams, or excavated in wetlands. The DOE sedimentation basins were also eliminated as regulated waters, even though those areas support wetland vegetation. Per 33 CFR 328, if the use of these sedimentation basins change, then those areas may become subject to regulation. An example of a change in use would be if a future property owner no longer maintains (and uses) the sedimentation basins left behind after The DOE transfer of the 1998 Mound Plant Property. In such cases, the abandoned sedimentation basins could develop wetland characteristics and become subject to regulation. The 0.117 acre in jurisdictional wetlands is comprised of nine wetlands, mainly along the south slope of what is known as the "Main Hill" of the 1998 Mound Plant Property. The seeps are also regulated wetlands, since it is not certain if their only source of water is leaks in DOE water mains beneath the production buildings. If the source of water to the seeps is eliminated, once DOE completes the environmental cleanup, then the seeps would undoubtedly revert to upland and would no longer be regulated waters. Several streams on the 1998 Mound Plant Property were also identified by the USACE as regulated waters. The main ditch running through the "North Property," and its two tributaries, is the largest of the regulated streams. Most of the flow in the main ditch is due to DOE plant cooling water, however, streams that are subject to intermittent flow are still regulated. Drainage swales, which are particularly abundant on the "South Property" are not streams, and were eliminated by the USACE as regulated waters. The 1999 wetlands delineation report states that Clean Water Act permitting for disturbance of regulated waters, after DOE excesses and transfers the property, should be straightforward. Since all wetlands and streams on the 1998 Mound Plant Property are considered isolated waters or headwaters, disturbance of those areas is potentially permissible under the Nationwide Permit program. The Nationwide Permit program typically involves pre-construction notifications to the USACE and, in certain instances, notification to the Ohio EPA.

Two sections of the 1998 Mound Plant Property (i.e., Parcels H and 4) lie within the 100-year floodplain of the Great Miami River. Refer to Section 6.0 of this LTS Plan for a list of floodplain documents developed pursuant to 10 CFR 1022.

In mid-1998, the Ohio Historic Preservation Office (OHPO), under authorization of the National Historic Preservation Act (NHPA), declared the original 17 buildings constructed in 1948, as part of Mound's polonium mission, to be "historic" buildings. These buildings were, therefore, eligible for placement on the National Register of Historic Places. Under the DOE cleanup plan for the 1998 Mound Plant Property, these 17 buildings will either be (or have already been) demolished or transferred to the MMCIC. Therefore, DOE does not intend to list these buildings on the National Register. Not listing the National Register-eligible buildings on the National Register is interpreted as a possible "adverse effect" in 36

CFR 800, Protection of Historic Properties. 36 CFR 800 governs the management of historic properties on Federal properties. Because of the potential for an adverse effect to National Register-eligible buildings, DOE entered into negotiations with the OHPO to develop mitigative actions to offset these possible adverse effects. By mid-2000, the OHPO and the DOE were unable to define the necessary mitigative measures, and DOE, under dispute resolution provisions in 36 CFR 800, petitioned the Advisory Council on Historic Preservation (ACHP) for resolution. The ACHP oversees OHPO's operation related to the NHPA.

On October 17, 2000, the DOE and the ACHP signed a Memorandum of Agreement (MOA) that institutes the required mitigative measures for Mound's National Register-eligible buildings (see **Exhibit 23**). Under the MOA, mitigation consists of the preparation of documentation packages for submission to the National Park Service for incorporation into the National Archive and/or to the OHPO for incorporation into the OHPO's archive. The type of documentation package prepared for the historic buildings is determined by the building function. Function is defined as operational or administrative with respect to the polonium mission.

The operational buildings include: Buildings B, E, HH, I, M, R, and T. Under the provisions of the MOA, the documentation packages required for the operational buildings is a Historic American Building Survey (HABS) documentation package. HABS documentation involves a multi-phased approach that includes a written history and a physical description of the structure, as well as a collection of architectural photographs of the building as it exists today. A similar package for the site history is also being prepared under the terms of the MOA.

The administrative buildings include: Buildings A, C, G, GH, H, P, PH, SD, W, and WD. The documentation packages for the administrative buildings are less formal, and consist for a written history, color photographs, and large scale drawings. As noted above, none of the original 17 buildings will be listed on the National Register, nor will there be any deed restrictions for the formerly National Register-eligible buildings. The preparation of the MOA mandated documentation packages fulfills the requirements of Section 106 of the NHPA as defined by the MOA for all 17 National Register-eligible buildings, and for the 1998 Mound Plant Property.

Exhibit 24 to this LTS Plan is the Executive Summary and Section 2 (Cultural Resource Management Goals) of the "Cultural Resource Management Plan" issued by the DOE-MCP in February 2000.

11.0 SITE TRANSITION FRAMEWORK

The DOE “LTS Planning Guidance for Closure Sites” included a DRAFT “Site Transition Framework for Long-Term Stewardship” (see **Exhibit 25**). The framework is designed to provide a tool to help facilitate a smooth transition from remediation into LTS, and a punch-list of items for all affected parties within DOE. The goal of the framework is to ensure that nothing in the site closure process has been overlooked, and that all appropriate actions have been completed prior to a site’s transfer into LTS. A copy of the (July 1, 2002, Revision 1) DRAFT Site Transition Framework is included as an exhibit to the LTS Plan, in order to demonstrate that there are many “behind the scenes” DOE planning activities that are occurring at the present time, and which will continue to occur and be refined, as the 1998 Mound Plant Property draws closer to site closure. The DOE-MCP anticipates receiving direction from DOE Headquarters in 2003 to begin preparing a Site Transition Framework for the 1998 Mound Plant Property. Many sections of the framework will take considerable time to analyze and act upon. However, all activities defined by the framework must be completed by the DOE-MCP prior to transition of the 1998 Mound Plant Property to the DOE Grand Junction Office. The DRAFT Site Transition Framework in **Exhibit 25** is subject to change, and DOE sites are also encouraged to tailor the framework to meet site-specific LTS planning needs.

LIST OF EXHIBITS

- Exhibit 1: December 13, 1993 letter from the City of Miamisburg to the OEPA
- Exhibit 2: Site Map of the “1998 Mound Plant Property”
- Exhibit 3: Legal Description of the “1998 Mound Plant Property”
- Exhibit 4: Sample Check-List for Review of Effectiveness of Institutional Controls
- Exhibit 5: Mound Reuse Committee (MRC) Charter, Scope & Responsibilities, and Interim Land Use Policy
- Exhibit 6: City of Miamisburg I-2 General Industrial District zoning
- Exhibit 7: List of Contacts
- Exhibit 8: Conceptual Site Model (from Parcel 3 RRE)
- Exhibit 9: DRAFT Uncertainty Matrix
- Exhibit 10: Emergency Response Action Plan
- Exhibit 11: Ohio EPA and ODH Protocol for Request to Remove Soil
- Exhibit 12: USEPA and Ohio EPA Protocol for Request to Use Groundwater
- Exhibit 13: Options to provide additional “layering” of Institutional Controls
- Exhibit 14: Excerpts from Ohio Department of Natural Resources (ODNR) website
- Exhibit 15: Ohio EPA regulation of public drinking water wells serving 25 people for greater than 60 days out of the year
- Exhibit 16: Ohio Department of Health (ODH) Application/Permit for Private Water System
- Exhibit 17: City of Miamisburg Application and Permit for Street Opening
- Exhibit 18: City of Miamisburg Building Permit Application
- Exhibit 19: City of Miamisburg Certificate of Occupancy
- Exhibit 20: User Groups of LTS Information/Data
- Exhibit 21: Possible Information Management System elements
- Exhibit 22: Excerpt from DOE Ohio Field Office “Records Management Program, A Management Guide” (dated March 2001)
- Exhibit 23: MOA between DOE and Advisory Council on Historic Places, dated October 17, 2000
- Exhibit 24: Executive Summary and Section 2 (Cultural Resource Management Goals) of the MCP “Cultural Resource Management Plan”
- Exhibit 25: Site Transition Framework (July 1, 2002, Revision 1 DRAFT)

EXHIBIT 1

(December 13, 1993 letter from City of Miamisburg to the OEPA)

EXHIBIT 2

(Site Map of the “1998 Mound Plant Property”)

EXHIBIT 3

(Legal Description of the “1998 Mound Plant Property”)

EXHIBIT 4

(SAMPLE Check-list for Review of Effectiveness of Institutional Controls)

CHECKLIST
for
Review of Effectiveness
of
Institutional Controls

Date(s) Performed:

Review led by:

Phone #:

Participants:

Parcel reviewed:

Summary of property improvements since the DOE sale of parcel or since the previous Review (whichever is most recent). For example, have buildings been demolished or erected? Has surface water flow been modified? Has landscaping been done?

Evidence of Soil removal from the “1998 Mound Plant Property”? Yes () No ()

Evidence of (non-DOE) Groundwater use? Yes () No ()

Evidence of land use other than “Industrial” (e.g., residential) ? Yes () No ()

Signage/Markers in good repair (if applicable)? Yes () No ()

Fencing in good repair (if applicable)? Yes () No ()

Groundwater Monitoring Wells maintained properly? Yes () No ()

Air Monitoring Stations maintained properly (if applicable)? Yes () No ()

Containment system(s) in good repair (if applicable)? Yes () No ()

Site Surveillance equipment in good repair (if applicable)? Yes () No ()

Other equipment associated with maintenance of the Institutional Controls in good repair (if applicable)?

Yes () No ()

Land use consistent with “industrial” use scenario?

Yes () No ()

Summary of items discovered during previous Review (and disposition of same):

Date of previous Review:

Item # 1: Corrected? Yes () No ()

Item # 2: Corrected? Yes () No ()

Item # 3: Corrected? Yes () No ()

Item # 4: Corrected? Yes () No ()

Personnel interviewed during the physical walk-over of parcel, or during review of documentation associated with the parcel:

List of Documents reviewed (e.g., street opening permits or construction permits approved by the City of Miamisburg, engineering drawings for improvements to property, aerial photographs, maps, zoning ordinance changes):

Based upon the review of the above-listed Documents, were property improvements covered by the appropriate approvals (e.g., building permit approved by City? movement of soil or use of groundwater approved by the regulators?).

Yes () No ()

Miscellaneous items noted during review:

Recommendations:

Conclusion:

Checklist prepared by: _____ Date: _____
U.S. Department of Energy

EXHIBIT 5

(Mound Reuse Committee [MRC] Charter, Scope & Responsibilities,
and Interim Land Use Policy)

EXHIBIT 6

(City of Miamisburg I-2 General Industrial District zoning)

EXHIBIT 7

(List of Contacts)

LIST OF CONTACTS

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EXHIBIT 8

(Conceptual Site Model [from Parcel 3 RRE])

EXHIBIT 9

(DRAFT Uncertainty Matrix)

DRAFT

Mound Draft Uncertainty Management Matrix Uncertainties associated with Land Use Controls and Long-Term Protectiveness at the Site

The following is a matrix summarizing uncertainties associated with maintaining long-term protection of human health and the environment at the Mound Plant. The uncertainties contained within this matrix were identified by representative individuals from the agencies that are currently planning and will ultimately implement Long-Term Stewardship at the Mound Plant. These individuals included employees of the Mound Site (i.e., Department of Energy and contractor employees), regulatory agencies (i.e., U.S. Environmental Protection Agency, Ohio Environmental Protection Agency, and Ohio Department of Health), Miamisburg-Mound Community Improvement Corporation, and employees of the City of Miamisburg. Following an analysis of the probability of occurrence and impact of the uncertainties, the Mound Core Team (i.e., Department of Energy, U.S. Environmental Protection Agency, and Ohio Environmental Protection Agency) prioritized uncertainties into four priority levels for management based on the probability of occurrence and impact of occurrence.¹ These priority levels are indicated in Table 1 and described below.²

Table 1. Priority Levels.		Impact		
		Low	Moderate	High
Probability	High	Level 3	Level 2	Level 1
	Moderate	Level 4	Level 3	Level 2
	Low	Level 4	Level 4	Level 3

Level 1: Top priority, due to high probability and high impact. Resources should first be spent on addressing these scenarios. These uncertainties should be addressed in the Long Term Stewardship (LTS) Plan and may require several layers of management.

Level 2: Second priority, due to either a high probability and a moderate impact or a moderate probability and a high impact rating. After Level 1 uncertainties are addressed, resources should be directed to managing these scenarios. In general, these uncertainties also should be included in the LTS Plan.

Level 3: Lesser priority with one of the following scorings: high probability and low impact, moderate probability and moderate impact, or low probability and high impact. These are uncertainties that should be considered; however, the core team feels that if management is necessary, low-cost approaches are most appropriate for uncertainties in this grouping.

Level 4: Lowest priority due to one of the following ratings: moderate or low probability and low impact or low probability and moderate impact. These uncertainties are generally inconsequential and may require little to no management. Note: in addition, the core team determined that some high probability/low impact uncertainties should be placed

¹ The results of the uncertainty evaluation are being documented in the Uncertainty Analysis Report.

² Colors in Table 1 have been added to assist the reader in distinguishing among the various priority levels and do not have any other significance.

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into the Level 4 grouping. These are scenarios that the core team feels will occur but will not have a health or perception impact. Uncertainties in this grouping are not included in the uncertainty management matrix.

The attached uncertainty management matrix contains the following information for uncertainties that have been ranked in the top three priorities levels:

- **Expected condition:** The assumed conditions of the site at the time of DOE closure, when the entire site is transferred for economic redevelopment.
- **Deviation (risk scenario):** A potential deviation from the expected conditions based on uncertainties – i.e., possible site conditions that are different than assumed.
- **Probability of occurrence:** The probability that each identified risk scenario may occur, based on professional judgment.
- **Impact:** The impact of each scenario assuming it *did* occur. Impacts were assessed in terms of health, public perception, and response required by DOE, based on the expertise of the individual interviewed. The distinction among different types of impacts is important because the management approaches and contingency plans likely will be different based on the type of impact that may occur.
- **Monitoring/ Management approach:** Actions that are planned or are being considered to monitor for these risk scenarios and to proactively manage uncertainties.
- **Time to respond:** The time to respond if a risk scenario *did* occur.
- **Contingency plan:** Actions that are planned or are being considered to address risk scenarios if they do occur. Note: contingency plans are implemented in reaction to an event, whereas management approaches are implemented to proactively manage uncertainties.

The matrix is divided based on the priority level of each uncertainty. Priority levels are noted in the section number and also in the page numbering. Section 1 contains those uncertainties that have been ranked top priority, Section 2 contains uncertainties ranked as second priority, and Section 3 contains uncertainties ranked as third priority. Uncertainties ranked as last priority have not been evaluated in the uncertainty matrix.

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Mound Draft Uncertainty Management Matrix Uncertainties associated with Land Use Controls and Long-Term Protectiveness at the Site

#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond (If deviation occurs)	Contingency Plan
Section 1: Top Priority Scenarios (Level 1)							
1	Cleanup actions have addressed site contamination. No exposure to unexpected contamination occurs.	Exposure occurs due to presence of unknown contamination. Specifically, a site construction worker or utility maintenance worker is exposed to unknown contamination while digging.	<p>High</p> <p><u>Rationale:</u> There is a high probability that a worker will be exposed to unknown contamination; however, the expectation is that the concentrations of contamination and duration of exposure are expected to be consistent with the assumptions in the Residual Risk Evaluation (RRE).</p> <p>Note: There is a very low probability that an individual would be exposed to a sufficient volume of soil or to any volume of soil with a high contaminant concentration exceeding the exposure scenario in the RRE.</p>	<p>High: Perception [Health impacts are low]</p> <p><u>Rationale (Perception):</u> The impact of this deviation occurring could be high due to perception issues. As a result, the cost to DOE of addressing perception issues could be high.</p> <p><u>Rationale (Health):</u> The RRE evaluates the health risk to workers from exposure to concentrations of residual contamination for a duration of time consistent with the activities expected to take place at the site. It is determined that there are no unacceptable risks to workers prior to transfer of land. In other words, the health impact has been evaluated quantitatively and has been estimated to be low. Therefore, if the deviation were to occur, the health impacts should be low.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> 1-800- "Call before you dig" program City construction permit program Review per O&M Plan (e.g., annual parcel walkover) and/or per CERCLA 5-year review 	<p>Short, with notification ASAP³</p> <p>If the impact is a perception one, and not a health impact, DOE will likely have a moderate timeframe for addressing perception impacts through education, etc.⁴</p>	<p>To be determined (TBD)</p> <p>Ideas for potential contingency plans:</p> <ul style="list-style-type: none"> Conduct education seminars (to address perception impact) Notification, if exposure occurs Test soils to determine level of exposure If contamination is discovered at concentrations that could cause health impacts, immediately stop work and test/treat workers

³ A short time to respond indicates that a response must be initiated within a month following occurrence of the scenario.

⁴ A moderate time to respond indicates that a response is required within 6 months.

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond (If deviation occurs)	Contingency Plan
Section 1: Top Priority Scenarios (Level 1)							
2	No soil will be removed offsite without approval.	Soil is moved offsite without approval (for private use, for a facility for children under 18 years, to a landfill or to another industrial site or for recreational use).	<p>High</p> <p><u>Rationale:</u> There is a high probability of soil being removed from the site. Note, however, that the probability of a hotspot being removed is low.</p>	<p>High: Perception [Health impacts are low]</p> <p><u>Rationale (Health):</u> For the hotspot to have a high health impact, the volume and/or concentration of the hotspot would need to be sufficient to meet the exposure scenario in the RRE. In addition, the effect of the hotspot may be diluted at its final destination point when it mixes with other soils, causing the concentration of the contaminant(s) to be lower.</p> <p><u>Rationale (Perception):</u> The impact of this deviation occurring could be high due to perception issues. As a result, the cost to DOE of addressing these perception issues could be high.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> • Deed restrictions • Property leases • Mound Museum for education • Mound Plant O&M Plan • Ohio right of enforcement granted by quitclaim deed for each parcel <p>Under consideration:</p> <ul style="list-style-type: none"> • Portal monitor to detect soil leaving the site • Neighborhood watch program • Defined post-closure community involvement process to address community concerns and perceptions 	<p>Immediate.⁵</p> <p>Need to locate soil to assess impacts and ensure that soil isn't moved to additional locations.</p>	<p>TBD</p> <p>Ideas for potential contingency plans, depending on placement of soils:</p> <ul style="list-style-type: none"> • Evaluate risk associated with where soils were placed (may include soil sampling) • Response action at location that received Mound soils • Conduct education seminar/ hold community meetings

⁵ An immediate time to respond indicates that a response is required within a week (e.g., hours or days).

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 2: Second Priority Scenarios (Level 2)							
1	Budget is maintained at levels high enough to conduct all long-term activities required by the ROD.	Budget cuts result in reducing activities required by the ROD (e.g., 5-year review and groundwater monitoring activities, annual report).	<p>Moderate</p> <p><u>Rationale:</u> The core team agreed that for the next ten years the probability of a budget cut is low; however, after that time period the probability increases to moderate due to loss of institutional memory or changes in national priorities.</p>	<p>High: Health & Perception</p> <p><u>Rationale (Health):</u> Activities that are required by the ROD are necessary to ensure that there is no unacceptable human health risk. Therefore, reducing these activities could result in a high health impact.</p> <p><u>Rationale (Perception):</u> If there is not federal support for maintaining site controls, there will likely be a high perception impact. This impact will be worse if there are also health impacts.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> • DOE to fulfill budgeting and budget request responsibilities • Stakeholders to support congressmen who will support LTS • Cannot otherwise manage whether or not there is a budget cut. However, the land use will be maintained through a tiered approach to ICs, involving agencies other than DOE. (Other agencies are not likely to conduct ROD activities and will not be liable for implementing activities agreed to in the tiered approach.) <p>Under consideration:</p> <ul style="list-style-type: none"> • This is a nation-wide issue. DOE Mound may not be able to manage it alone; however, DOE could support national efforts (EM-51) for LTS funds (e.g., establish contingency fund) 	<p>Moderate.</p> <p>If budget cuts occur, DOE will likely have advance notice that funding will be cut. Once the budget is final, DOE will need to reduce long-term stewardship activities immediately.</p>	<p>TBD</p> <p>Ideas for potential contingency plans:</p> <ul style="list-style-type: none"> • Stakeholders to support lobbying campaign to Congress • Use contingency fund money (if available) • Prioritization plan for stewardship activities • Involve community in post-closure process • OEPA and/or USEPA take action against DOE based on a violation of the ROD

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 2: Second Priority Scenarios (Level 2)							
2	Boundaries of the site are maintained	<p>Boundaries of the site are lost over time.</p> <p>The concern is the possibility of encroachment toward the boundaries. Of most concern is the scenario where a neighbor plants a vegetable garden on site property and consumes the fruits/vegetables grown on the former Mound Plant.</p>	<p>Moderate</p> <p><u>Rationale:</u> The probability of occurrence increases to moderate over time due to loss of institutional memory.</p>	<p>High: Health & Perception</p> <p><u>Rationale (Health):</u> If the site is used in a manner not consistent with the RRE, there could be exposure to contamination, potentially causing a health impact.</p> <p><u>Rationale (Perception):</u> The perception impact could be high if the site is used in a manner not consistent with deed restrictions.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> Review per O&M Plan (e.g., annual parcel walkover) and/or per CERCLA 5-year review Coordinates documented in deed Mound Museum for education <p>Under consideration:</p> <ul style="list-style-type: none"> A GIS system to demonstrate the site boundaries as well as the land use allowed in each area of the site may reduce the risk of this uncertainty Stone markers at areas of concern Limited fencing Ongoing community education (e.g., annual newspaper article) 	<p>Moderate.</p> <p>Minimizing duration of exposure directly reduces severity of impact.</p>	<p>TBD</p> <p>Ideas for potential contingency plans, depending on location of encroachment and actual exposure type/duration:</p> <ul style="list-style-type: none"> Evaluate potential impact to health associated with exposure. Take action, if necessary Research historical documents to re-define boundaries of site Fence site boundaries

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 2: Second Priority Scenarios (Level 2)							
3	Site is used consistent with the deed; all restrictions are observed.	Site is used for a land use that is not allowed under the deed, such as residential, a day care facility, a school, a community center, playground, or other recreational or religious facility for children.	<p>Moderate</p> <p><u>Rationale:</u> The probability of occurrence increases to moderate over time due to loss of institutional memory. For example, if the industrial park succeeds, there may be pressure in the future to have an onsite day-care facility. If the industrial park does not succeed, there may be pressure in the future to redevelop the land for one of the other uses.</p>	<p>High: Perception [Health impacts are moderate]</p> <p><u>Rationale (Health):</u> Because recreational land uses are generally less restrictive than industrial land use, the core team does not believe this will have a high health impact. The core team rated this scenario as having a moderate health impact (rather than a low health impact) because it may include exposure to children less than 18 years of age. Note: Recreational land use was not evaluated in the RRE.</p> <p><u>Rationale (Perception):</u> Perception impact could be high if the site is used in a manner not consistent with the deed restrictions.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> • Deed restrictions • Property leases • Review per O&M Plan (e.g., annual parcel walkover) and/or per CERCLA 5-year review • Ohio right of enforcement • MRC Interim Land Use Policy • Mound Plant O&M Plan <p>Under consideration:</p> <ul style="list-style-type: none"> • Review of satellite imaging • Ongoing community education (e.g., annual newspaper article) • Require more than one physical inspection conducted by a federal entity each year, OR conduct random site inspections to ensure that land use is maintained • Neighborhood watch program 	<p>Moderate to long, depending on use.⁶</p> <p>For most of the land use changes there will be a period of construction prior to using the land in a manner inconsistent with the deed. This time period will allow DOE and other agencies to evaluate or stop the construction or prevent use of the facility.</p>	<p>Report violation to the Department of Justice (DOJ), so that they may take action</p> <p>Ideas for additional contingency plans (TBD):</p> <ul style="list-style-type: none"> • Evaluate potential impact to health associated with exposure. Take appropriate action based on results • Conduct education seminar

⁶ A long time to respond indicates that a response may be initiated 6 months or more following occurrence of the scenario.

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 2: Second Priority Scenarios (Level 2)							
4	Site is used consistently with the intended land use designation.	Site is used for a land use that is not anticipated based on the industrial land use designation. Of specific concern is that the site is used for health-care related commercial activities (e.g., hospitals, eldercare), or non-health care related commercial activities (e.g., restaurants, stores).	<p>Moderate</p> <p><u>Rationale:</u> The probability of occurrence increases to moderate over time due to loss of institutional memory. If the industrial park does not succeed, there may be pressure in the future to expand the use associated with industrial to include one of these other uses.</p>	<p>High: Health & Perception</p> <p><u>Rationale (Health):</u> The deed restrictions were put in place to ensure that an unacceptable risk to human health does not occur. If these restrictions are not observed, the impact to health could be high (depending on the actual exposure scenario). None of the exposure scenarios listed in the deviation section have been evaluated in the RRE.</p> <p><u>Rationale (Perception):</u> Perception impact could be high if the site is used in a manner not consistent with the deed restrictions.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> • Deed restrictions • Property leases • Review per O&M Plan (e.g., annual parcel walkover) and/or per CERCLA 5-year review • Ohio right of enforcement • MRC Interim Land Use Policy • Mound Plant O&M Plan • Mound Museum for education <p>Under consideration:</p> <ul style="list-style-type: none"> • Review of satellite imaging • Ongoing community education (e.g., annual newspaper article) • Revising deed to specifically exclude these land uses • Require more than one physical inspection conducted by a federal entity each year, OR conduct random site inspections to ensure that land use is maintained • Neighborhood watch program 	<p>Moderate to long, depending on use.</p> <p>For most of the land use changes there will be a period of construction prior to using the land in a manner inconsistent with the deed. This time period will allow DOE and other agencies to evaluate or stop the construction or prevent use of the facility.</p>	<p>Report violation to the DOJ, so that they may take action</p> <p>Ideas for additional contingency plans:</p> <ul style="list-style-type: none"> • Evaluate potential impact to health associated with exposure. Take action, if necessary • Conduct education seminar

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 2: Second Priority Scenarios (Level 2)							
5	Onsite BVA Aquifer water is not used for human consumption without approval.	<p>The onsite BVA Aquifer is used for drinking water without approval. This activity is specifically excluded by the deed.</p> <p>Note: Presently the onsite BVA is used to supply potable water to the site, including transferred parcels. The site's water supply is currently monitored per the Safe Drinking Water Act. This risk scenario applies once the entire site is transferred and the municipal water supply is hooked up and functioning. In order to assess the health impacts of this risk scenario, the assumption was made that future wells could be located in areas with groundwater contamination or that contamination could migrate to the groundwater in the long term.</p>	<p>Moderate</p> <p><u>Rationale:</u> The probability of occurrence increases to moderate over time due to loss of institutional memory.</p>	<p>High: Health & Perception</p> <p><u>Rationale (Health):</u> Based on the results of the RRE, there is a potential high health impact posed by consumption of water from the onsite BVA. Also, this risk scenario includes exposure (i.e., consumption) to receptors that were not evaluated in the RRE. Actual health impacts would depend on the location of the well, the concentrations of contaminants in the water, the quantity of water consumed, the duration of exposure, and the characteristics of the receptor.</p> <p><u>Rationale (Perception):</u> The perception impact could be high if the site is used in a manner not consistent with deed restrictions. Perception problems will likely increase the longer the aquifer is used for drinking.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> City water supply Deed restrictions Review per O&M Plan (e.g., annual parcel walkover) and/or per CERCLA 5-year review Regulator independent authority Ohio right of enforcement State/county well permit program Mound O&M Plan <p>Under consideration:</p> <ul style="list-style-type: none"> Neighborhood watch program Geophone (acoustic monitoring) technology to detect well-drilling Ongoing community education (e.g., annual newspaper article) Defined post-closure community involvement process Require more than one physical inspection per year OR conduct random site inspections to ensure that groundwater use restriction is maintained 	<p>Moderate.</p> <p>Minimizing duration of exposure directly reduces severity of impact. Also, perception problems will likely be worse the longer the aquifer is used for drinking.</p>	<p>Report violation to DOJ, so that they may take action</p> <p>Ideas for additional contingency plans:</p> <ul style="list-style-type: none"> Evaluate potential impact to health associated with exposure (i.e. ingesting onsite BVA water). Take action, if necessary Close / abandon groundwater wells Conduct education seminar

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 2: Second Priority Scenarios (Level 2)							
6	Post-closure worker does not get sick due to his/her work at Mound.	Post closure worker later gets sick and think it's due to work at Mound.	<p>High</p> <p><u>Rationale:</u> Other DOE sites have had to address potential health issues related to their workers. It is likely that if a post-closure worker later gets sick (e.g., cancer), he or she will assume that it is due to work at Mound.</p>	<p>Moderate: Cost & Perception</p> <p><u>Rationale (Cost):</u> The cost impact could be significant if dose reconstructions are required to determine if the sickness is related to post-closure work at Mound.</p> <p><u>Rationale (Perception):</u> Due to the historical secrecy of the DOE mission and historical environmental releases, DOE has faced perception issues with local communities and previous site workers. These perception issues may continue in the future and extend to employees that work at the site following closure.</p>	<ul style="list-style-type: none"> Maintain CERCLA administrative records as required. These records will provide documentation of the cleanup conducted and the residual concentrations of contaminants left at the site 	<p>Moderate.</p> <p>Because the impact is a perception one, and not a health impact, DOE will likely have a moderate timeframe for addressing perception impacts. However, the longer that DOE waits to address a perception issue, the worse the problem could become.</p>	<p>TBD</p> <p>Ideas for potential contingency plans:</p> <ul style="list-style-type: none"> Reconstruct dose exposure for workers who believe they are sick Implement education seminar

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
1	Seeps will not be used for any purpose.	Children play in the seep area.	<p>High (Offsite seeps)</p> <p><u>Rationale:</u> Because some of the seeps are located offsite, and currently there are no access restrictions to these seep areas, there is a high probability that children could play in seeps.</p> <p>[Low: Onsite seeps] Note, however, that there is a low probability that children will play in the onsite seeps.</p>	<p>Low: Health & Perception (Offsite Seeps)</p> <p><u>Rationale (Health):</u> Presently, the offsite seeps are accessible to the public. The health impacts of this risk scenario are expected to be low to none, due to the concentrations of residual contamination and the intermittent nature of the seeps (assuming MCLs are met and contaminants continue to decrease). An offsite risk evaluation is planned and this risk scenario will be included in that evaluation. <i>Note:</i> If children were to play in the onsite seeps, the health impacts should also be low, assuming the MCLs have been met. It is possible that the parcel could be transferred without the seeps meeting MCL standards. The core team is concerned that it may take some time for levels to drop below MCLs following source term removal. If so, a remedy will be placed in the ROD to address this situation.</p> <p><u>Rationale (Perception):</u> No perception impacts are expected if children play in the offsite seeps due to the low concentrations of residual contamination and the intermittent nature of the seeps. <i>Note:</i> There may be a moderate to high perception impact if children play in the onsite seeps.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> • Deed restrictions • City's I-2 zoning ordinance • Mound Museum for education • Mound Plant Operation and Maintenance (O&M) Plan <p>Under consideration:</p> <ul style="list-style-type: none"> • Ensure that the seeps meet MCLs before they are transferred to the MMCIC • If seeps are transferred prior to meeting MCLs, efficiently document the reasons why this does not represent a health impact • Fence onsite seep area (specifically Seep 601) • Post signs near the onsite seep • Video surveillance • Defined post-closure community involvement process • Ongoing community education (e.g., annual newspaper article) • Neighborhood watch program 	Moderate.	<p>Report violation to DOJ, so that they may take action</p> <p>Ideas for additional contingency plans:</p> <ul style="list-style-type: none"> • Evaluate potential impact to health associated with exposure (i.e., ingesting and contact with seep water) • Conduct education seminar

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
2	<p>Records are maintained to ensure that they can be accessed if needed.</p> <p>May be accomplished by:</p> <ol style="list-style-type: none"> 1) Maintaining paper files, 2) Continuing to use current imaging and retrieval technologies, or 3) Ensuring that records are compatible with new imaging and retrieval technologies. 	<p>Needed records/data (e.g., for litigation, public concern) are not readable or available resulting in either Federal liability or re-work (e.g., sampling).</p> <p>There are two specific concerns:</p> <ol style="list-style-type: none"> 1) Rapid advances in records imaging and retrieval technology make previous records unreadable, and 2) Geographical data are not maintained 	<p>High</p> <p><u>Rationale:</u> Other sites have already had to address this scenario with potentially large costs for re-creating information though additional sampling, etc. It is important to note, however, that this scenario only applies to electronic records.</p>	<p>Low: Health & Cost</p> <p><u>Rationale (Health):</u> There is a low health impact because the readability of records does not influence potential exposure to residual contamination.</p> <p><u>Rationale (Cost):</u> There is a low cost impact because DOE is planning to maintain at least one copy of each of its records in paper form, negating the risk scenario.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> • DOE-Mound will maintain all of its CERCLA Administrative Record (AR) documents in paper form • Additional copies of the CERCLA AR will be kept (e.g., by USEPA and OEPA) • Convert old electronic files when new technology installed <p>Also considering:</p> <ul style="list-style-type: none"> • Include a review of imaging and retrieval technologies / readability of records in the annual or CERCLA 5-Year Review 	<p>Moderate.</p> <p>Records may not be immediately required and there will likely be a limited amount of time (e.g., months) to re-build systems or re-assemble information.</p>	<p>TBD</p> <p>Ideas for potential contingency plans:</p> <ul style="list-style-type: none"> • Retrieve duplicate paper record • Attempt to obtain previously used technology to read records and copy onto a current format (If possible) • Resample area(s) in question or, if possible, fill data gaps with long-term monitoring data

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
3	Budget is maintained at levels high enough to conduct all planned activities, including those not required by the ROD.	Budget cuts result in reducing activities at the site; the activities that are eliminated are not ROD requirements (e.g., technologies to determine if truck leaves site with soil).	<p>High</p> <p><u>Rationale:</u> Long-term stewardship funding is a nation wide concern, for all post-closure activities. The core team agrees that for the next ten years the probability of a budget cut will be low; however, after that time period the probability increases to high due to loss of institutional memory or changes in national priorities.</p>	<p>Low: Health</p> <p><u>Rationale:</u> This scenario is focused on budget cuts reducing activities not required by the ROD. The purpose of these activities is to provide additional management to ensure that the land use restrictions at Mound are maintained; however, they are not required to ensure protection of human health and the environment.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> • DOE to fulfill budgeting and budget request responsibilities • Stakeholders to support congressmen who will support LTS • Can't otherwise manage whether or not there is a budget cut. But the land use will be maintained through a tiered approach to ICs, involving agencies other than DOE. (Other agencies aren't liable for implementing activities agreed to in the tiered approach.) <p>Under consideration:</p> <ul style="list-style-type: none"> • This is a nation-wide issue. DOE Mound may not be able to manage it alone; however, DOE could support national efforts (EM-51) for LTS funds • Prioritization plan for stewardship activities • Defined post-closure community involvement process 	Moderate. If budget cuts occur, DOE will likely have advance notice that funding will be cut. Once the budget is final, DOE will need to reduce long-term stewardship activities immediately.	TBD Ideas for potential contingency plans: <ul style="list-style-type: none"> • Support lobbying campaign to Congress • Use fund money (if available) • If possible, implement prioritization plan for stewardship activities and community process

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
4	There will be some type of central oversight /onsite presence at the site (e.g., MMCIC)	<p>No central oversight / onsite presence.</p> <p>The specific concern is that a lack of onsite oversight increases the probability that a deed restriction may be violated.</p>	<p>High</p> <p><u>Rationale:</u> It is possible that eventually there will not be an entity onsite to provide oversight. For example, MMCIC will likely leave the site after it is fully developed as an industrial park.</p>	<p>Low: Health, Cost & Perception</p> <p><u>Rationale (Health, Cost & Perception):</u> DOE will conduct yearly inspections as required by the ROD, regardless of whether there is an onsite presence. Accordingly, DOE is planning to report and address changes of land use and any other activities onsite on a yearly basis. The oversight that DOE will be providing in this manner should ensure that deed restrictions are not violated. Therefore, even if there is no onsite oversight, the health, cost & perception impacts should be minimal at most.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> • Tiered approach to ICs, involving agencies other than DOE • City's I-2 zoning • Review per O&M Plan (e.g., annual parcel walkover) and/or per CERCLA 5-year review • Regulator independent authority • Ohio right of enforcement • MRC Interim Land Use Policy • Mound Plant O&M Plan (Yearly inspections; report and address potential problems on a yearly basis) 	<p>Moderate.</p> <p>The health, cost & perception impacts should be minimal regardless of an onsite presence, so there is a moderate time frame to determine the path forward.</p>	<p>TBD</p> <p>Ideas for potential contingency plans:</p> <ul style="list-style-type: none"> • Require more than one physical inspection conducted by a federal entity each year • Random site inspections to ensure that land use is maintained • DOE or another federal, state, or local agency takes on an on-site presence at the site (e.g., City of Miamisburg relocates offices onsite)

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
5	The monitoring systems are regularly inspected and maintained to prevent any breakdowns.	<p>System for monitoring breaks down at some point in the chain of events.</p> <p>This scenario includes all things required for monitoring – e.g., monitoring equipment, data transfer, data analysis.</p>	<p>High</p> <p><u>Rationale:</u> Based on the site experience monitoring groundwater, it is highly probable that there will be a breakdown at some point in the chain of events.</p>	<p>Low: Health, Cost & Perception</p> <p><u>Rationale (Health, Cost & Perception):</u> The assumption is that after the monitoring system breaks down, the problem will be caught and fixed within a few months timeframe. Potentially a quarter's worth of monitoring data could be lost; however, the loss of that amount of monitoring data should have a low health, cost and perception impact.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> Review per O&M Plan (e.g., annual parcel walkover) and/or per CERCLA 5-year review Review of monitoring data by regulators <p>Ideas for additional monitoring:</p> <ul style="list-style-type: none"> If there are any events that would require an immediate response, conduct backup/duplicate monitoring 	<p>Moderate.</p> <p>Monitoring will generally be used to demonstrate data trends, but could indicate new sources of contamination; therefore, it important to maintain the system to ensure that significant amounts of data are not lost.</p>	<p>TBD</p> <p>Ideas for potential contingency plans:</p> <ul style="list-style-type: none"> Fix monitoring system as soon as breakdown is identified Recollect data, if necessary
6	All workers at the site are adults (greater than 18 years of age).	<p>A worker is employed (full-time or part-time) who is less than 18 years of age and as young as 14 years of age per Title 41, Ohio Revised Code, Chapter 4109. This scenario is of concern because it was not evaluated in the RRE.</p>	<p>High</p> <p><u>Rationale:</u> There is a high possibility that at some point in the future, a firm associated with the site employs a minor (e.g., a landscaping firm).</p>	<p>Low: Health</p> <p><u>Rationale:</u> The health impact to a minor working at the site should be low, because the exposure period before becoming an adult would be limited and the number of hours a minor can work are limited by law. Further, the exposure scenario in the RRE assumes a certain body weight of an 18-year old; the weight of minors that are old enough to get a work permit likely approximates this body weight. Note: Actual health impacts would depend on the specific type of work performed, the duration of exposure, and the characteristics of the receptor.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> Deed restrictions MMCIC includes language in property leases that prohibits employing minors Mound Museum for education <p>Under consideration:</p> <ul style="list-style-type: none"> Ongoing community education (e.g., annual newspaper article) Neighborhood watch program 	<p>Short.</p> <p>Minimizing duration of exposure directly reduces severity of impact. Also, perception impacts will likely be worse the longer that the minor is working at the site.</p>	<p>TBD</p> <p>Ideas for potential contingency plans:</p> <ul style="list-style-type: none"> Upon discovery, immediately layoff/relocate all workers under 18 years of age Evaluate potential impact to health. Take action, if necessary

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
7	DOE provides all required reports promptly.	DOE does not provide required report (e.g., CERCLA 5-year report, required monitoring data). A failure to submit required reports would have the potential to lead to regulatory enforcement.	High <u>Rationale:</u> At some point in the future, it is probable that DOE will fail to provide a required report on time.	Low: Perception <u>Rationale (Perception):</u> The failure to provide a report may have some perception impacts that could potentially lead to lawsuits. The most likely impact is that USEPA and OEPA would coerce DOE into completing work.	Currently planned: • Prior to transfer, define documentation and activity expectations with regulators	Short. DOE will need to remedy the situation quickly to minimize negative perceptions about the effectiveness of long-term stewardship and comply with legal requirements.	Currently planned: • Regulator imposed fines/litigation Ideas for additional contingency plans: • If DOE is aware that a report will be late, notify regulators ahead of time/request an extension
8	DOJ will take a sufficient level of action following a reported violation of deed restrictions/ ROD requirement.	OEPA believes that DOJ has taken insufficient level of action following violation of deed restrictions.	High <u>Rationale:</u> Because DOJ is a federal agency with national responsibilities, it is possible that the action DOJ chooses to take following a violation of a deed restriction will be considered insufficient by agencies with more of a local focus.	Low: Health <u>Rationale:</u> The level of action that DOJ determines is appropriate will not have a health impact. Note: The impacts evaluated here are simply those associated with believing that DOJ has taken insufficient action following a deed violation. The impacts of specific deed violations are evaluated as separate deviations in this risk management matrix.	Currently planned: • Tiered approach to ICs, involving agencies other than DOE, to prevent a violation of deed restrictions	Short to moderate depending on violation.	• OEPA may initiate legal proceedings against DOE • OEPA may use of the right to enforce deed restrictions granted by DOE through the deed

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
9	The site will not be used for recreational off-roading.	<p>Trespassing for the purpose of off-roading.</p> <p>The main concern is chronic exposure of children under 18 years of age.</p>	<p>Moderate to High</p> <p><u>Rationale:</u> The probability of repeated trespassing for the use of off-roading is low if the industrial park succeeds. It might be possible for the site to be used for off-roading at some point in the future, especially if the industrial park fails.</p>	<p>Moderate: Low</p> <p><u>Rationale:</u> Even if individuals were to trespass for the purpose of off-roading, any exposures incurred should be less than those estimated in the RRE under the construction worker scenario. It is also assumed that receptors would be similar in physical characteristics to those evaluated in the RRE.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> • Tiered approach to ICs, involving agencies other than DOE • Deed restrictions • Property leases • Review per O&M Plan (e.g., annual parcel walkover) and/or per CERCLA 5-year review • Ohio right of enforcement • Development of industrial park • Mound Plant O&M Plan • Mound Museum for education <p>Under consideration:</p> <ul style="list-style-type: none"> • Ongoing community education (e.g., annual newspaper article) 	Long.	<p>Report violation to the DOJ, so that they may take action.</p> <p>Ideas for additional contingency plans if trespassing for off-roading becomes a common occurrence:</p> <ul style="list-style-type: none"> • Evaluate the potential impact to health associated with exposure. Take appropriate action based on the results • Fence the site • Post "No Trespassing" signs • Conduct education seminar

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
10	The definition of industrial land use remains the same indefinitely. Only the uses specified in the deed are permitted.	Definition of industrial land use changes in future to include new scenarios that are not specifically excluded by the deed (e.g., the City of Miamisburg could potentially allow uses permitted under an I-2 zoning and not specifically excluded in the deed). This scenario implies land uses that are outside of the ROD.	Moderate <u>Rationale:</u> In the future, the probability of occurrence may increase to moderate due to the loss of institutional memory.	Moderate: Perception [Health impacts are low] <u>Rationale (Perception):</u> If there were to be an impact, it would likely be a perception one (e.g., worker concern about land use). <u>Rationale (Health):</u> The health impact is expected to be low because any uses allowed under an I-2 zoning would likely result in exposures that are similar to or less than those evaluated in the RRE (e.g., receptors should have similar physical characteristics and the duration of exposure should be similar).	Currently planned: <ul style="list-style-type: none"> • Deed restrictions (including prohibiting specific uses) • Property leases • Review per O&M Plan (e.g., annual parcel walkover) and/or per CERCLA 5-year review • Mound Reuse Committee's Interim Land Use Policy • Mound Museum to provide education • Mound Plant O&M Plan Under consideration: <ul style="list-style-type: none"> • Ongoing community education (e.g., annual newspaper article) • Require more than one physical inspection per year OR conduct random site inspections to ensure that land use restrictions are maintained 	Long. If the accepted definition of "industrial" changes to include uses at other sites that are not acceptable for the Mound Plant, steps can be taken to ensure that these uses do not occur at Mound.	Report violation to the DOJ, so that they may take action. Ideas for additional contingency plans: <ul style="list-style-type: none"> • Evaluate the ongoing activity per the RRE to determine the risk it poses. Take appropriate action based on results • Conduct education seminar

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
11	The CERCLA AR remains complete.	Loss or loss of access to a portion of the CERCLA AR (e.g., due to lack of care, mold, rats, misplacement).	<p>Moderate</p> <p>The core team assumes that the Administrative Record (AR) will be kept in a Federal Records Center, reducing the probability that records will be lost (or access to records will be lost). In addition, there will be duplicate sets of the AR available (e.g., USEPA will retain a copy). Therefore, the probability of losing access to a portion of the AR is moderate.</p>	<p>Moderate: Cost & Perception [Health impacts are low]</p> <p><u>Rationale (Cost & Perception):</u> The impact would not be high because there are going to be duplicate copies of the AR. If some records are lost from the AR, they should be retrievable from another source (e.g., USEPA, OEPA).</p> <p>The biggest concern is the inability to access documents required for litigation or for understanding how to best manage the site. If records cannot be re-assembled, DOE may need to collect additional data at the site, thus incurring additional costs.</p> <p><u>Rationale (Health):</u> Loss or loss of access to a portion of the CERCLA administrative record will not have a health impact.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> Currently preparing to meet CERCLA and FFA AR requirements, although the exact method is unknown Place records in Federal Records Center Provide copy of administrative record to Mound Museum Duplicate sets of the AR available (e.g., USEPA will retain a copy) Define records as "vital" so that an additional copy is stored 	<p>Moderate.</p> <p>Records may not be immediately required. There will likely be a limited amount of time to re-assemble or gather information.</p>	<p>TBD</p> <p>Ideas for potential contingency plans:</p> <ul style="list-style-type: none"> Re-assemble the AR from the duplicate copies (if possible) Compile other historical data that may be available to supplement or reconstruct remainder of AR Resample area(s) in question or, if possible, fill data gaps with long-term monitoring data

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
12	Monitoring data are interpreted correctly.	New monitoring data are not interpreted correctly. Particularly of concern is that the party responsible for monitoring data is not familiar with site-specific conditions. The result could be that new data are interpreted incorrectly to indicate that further action or additional data collection is warranted at the site (e.g., high concentrations of certain metals in the groundwater may be due to corrosion of the well casings).	<p>Moderate [The probability of this scenario resulting in health impacts is low]</p> <p><u>Rationale:</u> In the future, the probability that monitoring data will be misinterpreted increases to moderate due to loss of institutional memory (e.g., interpretation of data by someone unfamiliar with the site) or human error.</p> <p>Note: The probability of misinterpreted data resulting in health risks is extremely low.</p>	<p>Moderate: Cost, Perception & Health</p> <p><u>Rationale (Cost & Perception):</u> The core team agreed that an error in interpreting new monitoring data could lead to costs for additional investigation or unnecessary action. The sooner the error is caught, the less costly the mistake will be.</p> <p><u>Rationale (Health):</u> In an extreme case, misinterpreted data could lead to potential health risks.</p>	<p>Under consideration:</p> <ul style="list-style-type: none"> • Maintain institutional knowledge (i.e., personnel with Mound-specific knowledge to review monitoring data) • Prior to transfer, document lessons learned from monitoring at the site (e.g., past inconsistencies with monitoring data and reasons why they exist) • Train new personnel in Mound-specifics that may cause confusion 	<p>Short to moderate.</p> <p>The core team expects that errors associated with monitoring data could be corrected quickly, thus reducing the level of impact.</p> <p>If data are interpreted incorrectly (i.e., wrongly indicating further action or further investigation is needed), that action will take time to plan. However, the sooner the error is caught, the less costly the mistake will be.</p>	<p>TBD</p> <p>Ideas for potential contingency plans:</p> <ul style="list-style-type: none"> • When data analysis indicates that additional action may be required, request that an expert in the field (preferably with experience at Mound) provide an independent interpretation of the data. This will improve public perception and provided additional weight to the corrected data

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
13	Onsite BVA Aquifer water is not used for industrial processes without approval.	Use of onsite BVA aquifer without approval for industrial processes.	Moderate <u>Rationale:</u> The probability of occurrence increases to moderate over time due to the loss of institutional memory.	Moderate: Health & Perception <u>Rationale (Health):</u> Although this resource use is excluded in the deed, the core team did not believe it would have a high health impact since it does not include consumption as an exposure pathway. This risk scenario was not evaluated in the RRE. <u>Rationale (Perception):</u> Perception impacts could be high if the site is used in a manner not consistent with the deed restrictions. Perception impacts will likely increase the longer that the aquifer is used for industrial processes.	Currently planned: <ul style="list-style-type: none"> Switch site to city water supply Deed restrictions Property leases Review per O&M Plan (e.g., annual parcel walkover) and/or per CERCLA 5-year review Regulator independent authority Ohio right of enforcement State/county well permit program Mound Plant O&M Plan Under consideration: <ul style="list-style-type: none"> Neighborhood watch program Geophone (acoustic monitoring) technology to monitor for well-drilling (Pilot project phase) Ongoing community education (e.g., annual newspaper article) Require more than one physical inspection per year OR conduct random site inspections to ensure that groundwater use restriction is maintained 	Moderate. Minimizing duration of exposure directly reduces severity of impact.	Report violation to DOJ, so that they may take action. Ideas for additional contingency plans: <ul style="list-style-type: none"> Stop use of onsite BVA aquifer and provide city water Abandon well(s) Evaluate the potential impact to health associated with exposure. Take appropriate action based on results Conduct education seminar

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
14	The records retrieval system works accurately and provides correct information.	Records retrieval system results in someone getting incorrect information.	<p>Moderate</p> <p><u>Rationale:</u> In the future, it is possible that the records retrieval system will not function correctly due to technological or human error.</p>	<p>Moderate: Perception & Cost</p> <p><u>Rationale (Cost & Perception):</u> The public may believe that long-term stewardship is not being conducted effectively. In addition, an error in receiving information could lead to additional costs for additional investigation. However, errors associated with records retrieval and monitoring technologies could be corrected quickly, thus reducing the level of impact.</p> <p>Note: There are no expected health impacts associated with an error in records retrieval.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> Currently developing the Document Management System, which includes key words in its coding 	<p>Short to moderate</p> <p>DOE should respond quickly to minimize negative perceptions about the effectiveness of long-term stewardship.</p>	<p>TBD</p> <p>Ideas for potential contingency plans:</p> <ul style="list-style-type: none"> Upon discovery of error, provide correct document If error was a result of a retrieval system failure, correct problem If it appears that additional action is required, re-evaluate to determine if there has been an error in records retrieval prior to planning action

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
15	MMCIC/City succeeds in developing site for industrial use	<p>MMCIC/City does not succeed in developing Site for industrial use.</p> <p>Lack of industrial park increases the probability that a deed restriction may be violated</p>	<p>Moderate</p> <p><u>Rationale:</u> It is possible that MMCIC will not receive the funding support needed or the leasers necessary to succeed in developing the site for industrial use.</p>	<p>Moderate: Health & Perception</p> <p><u>Rationale (Health & Perception):</u> If an industrial park is not in place, the land could be used inappropriately, potentially resulting in both health and perception impacts.</p> <p>Note: Depending upon the outcome and type of use of the property, the health and perception impacts could range from low to high. The impacts of various land uses, including specific deed violations, are evaluated as separate deviations in this risk management matrix.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> • Tiered approach to ICs, involving agencies other than DOE • Review per O&M Plan (e.g., annual parcel walkover) and/or per CERCLA 5-year review • Regulator independent authority • Ohio right of enforcement • Mound Plant O&M Plan • Mound Museum for education <p>Under consideration:</p> <ul style="list-style-type: none"> • Neighborhood watch program • Ongoing community education (e.g., annual newspaper article) 	<p>Moderate.</p> <p>The health & perception impacts should be small during the time it would take to find another suitable use or landlord for the site.</p>	<p>TBD</p> <p>Ideas for potential contingency plans:</p> <ul style="list-style-type: none"> • DOE or another federal, state, or local agency takes on an on-site presence at the site (e.g., City of Miamisburg relocates offices onsite) • Fence site to ensure land use restrictions are maintained • Increase number of physical inspections required per year OR conduct random site inspections to ensure that land use is maintained

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
16	DOJ will take a sufficient level of action following a violation of a deed restriction.	DOJ does not take any action following a violation of a deed restriction.	<p>Moderate</p> <p><u>Rationale:</u> Because DOJ is a Federal agency with national responsibilities, it is possible that DOJ may choose not to take any action following a violation of a deed restriction.</p>	<p>Moderate: Perception & Health</p> <p><u>Rationale (Perception & Health):</u> If DOJ chooses not to take any action following a deed restriction, it could become increasingly difficult to enforce the land use restrictions, resulting in a moderate perception and health impact. It is important to note, however, that the planned, layered management approach will reduce the impacts that the lack of DOJ action could have.</p> <p>Note: The impacts evaluated here are simply those associated with DOJ choosing not to take action following a deed violation. The impacts of specific deed violations are evaluated as separate deviations in this risk management matrix.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> Tiered approach to ICs, involving agencies other than DOE 	Short to moderate depending on violation.	<ul style="list-style-type: none"> OEPA initiates legal proceedings using the right to enforce deed restrictions granted by DOE through the deed OEPA and/or USEPA take action against DOE based on a violation of the ROD <p>Ideas for potential contingency plans:</p> <ul style="list-style-type: none"> DOE, USEPA or OEPA take additional action

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
17	The CERCLA AR remains complete.	<p>Catastrophic event (e.g., flood, fire) destroys DOE's entire CERCLA Administrative Record.</p> <p>Records not available if needed for litigation purposes or for understanding the actions taken at the Site and the rationale for these actions.</p>	<p>Low</p> <p><u>Rationale:</u> The core team assumes that the administrative record will be kept in a Federal Records Center. In addition there will be a duplicate sets available (e.g., EPA will also retain a copy). Thus the probability of destroying the entire record becomes very small.</p>	<p>High: Cost & Perception</p> <p><u>Rationale (Cost & Perception):</u> This scenario would eliminate all site records, leading either to additional costs for investigation or potential mismanagement of the site.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> Preparing to meet CERCLA and FFA requirements / retention schedules (i.e., NARA requirements) Place records in Federal Records Center Duplicate sets available (e.g., USEPA will also retain a copy) Duplicate sets of the AR available (e.g., USEPA will retain a copy) <p>Under consideration:</p> <ul style="list-style-type: none"> Define records as "vital" so that an additional copy is stored Provide copy of administrative record to Mound Museum 	<p>Moderate.</p> <p>Records may not be immediately required and there will likely be a limited amount of time to re-assemble information.</p>	<p>TBD</p> <p>Ideas for potential contingency plans:</p> <ul style="list-style-type: none"> Re-assemble the AR from the duplicate copies (if possible) Compile other historical data that may be available to supplement or reconstruct remainder of AR Resample area(s) in question or, if possible, fill data gaps with long-term monitoring data

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
18	Current cleanup levels are and will continue to be considered protective in the future and monitoring technologies are able to demonstrate that contamination is at or below cleanup levels.	Changes in cleanup levels result in: 1) the site no longer being considered protective in the future, and/or 2) in place monitoring technologies unable to demonstrate that contamination is at or below cleanup levels (e.g., due to detection limits).	Low <u>Rationale:</u> The core team agrees that cleanup criteria will change; however, It is extremely unlikely that a change in cleanup criteria will result in the site no longer being considered protective of human health and the environment. The core team believes that the remedy will continue to be protective, even if the cleanup levels change, because of the degree of conservatism used for determining the health impacts of the residual contamination at the site.	High: Health, Cost & Perception <u>Rationale (Health, Cost & Perception):</u> If cleanup levels change such that the site is no longer considered protective, there will be high cost and perception impacts, and potentially high health impacts.	Currently planned: <ul style="list-style-type: none"> CERCLA 5-Year Review. DOE and regulators will determine if toxicological values (slope factors) have changed and evaluate the impact of these changes Under consideration: <ul style="list-style-type: none"> Define evaluations that would be necessary to evaluate impact to site workers so that they can be conducted quickly Define post-closure community involvement process 	Short. In terms of implementing the new standard, DOE will likely have a long time to respond. However, DOE will have to move quickly to educate and respond to workers, the general public and the media. DOE will have to address the amount of change, the reasons for the change, and the impact of the change.	TBD Ideas for potential contingency plans: <ul style="list-style-type: none"> Re-evaluate protectiveness of the site given the new cleanup criteria Replace monitoring technologies (if necessary) with ones that will detect to new standards protection Conduct additional response actions, if necessary Conduct education seminar

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
19	Site is used for industrial land use only, as specified by the deed.	Site is used for farming activities. This scenario includes the possibility that the onsite BVA aquifer is used for irrigation.	<p>Low</p> <p><u>Rationale:</u> The core team agreed that the probability for farming to take place at some point in the future is very low. Land use in the Miamisburg area has increasingly become residential, commercial and industrial. Farming has continued to decrease.</p>	<p>High: Health, Cost & Perception</p> <p><u>Rationale (Health):</u> If farming were to occur, there could be high health impacts because of consumption of the crops. The actual health impacts would depend upon the type of crop and its ability for contaminant uptake, as well as the characteristics of the receptor. This scenario was not evaluated in the RRE.</p> <p><u>Rationale (Cost & Perception):</u> Perception impacts could be high if the site is used in a manner not consistent with the deed restrictions. If perception impacts are high, DOE will likely have high costs associated with addressing those perceptions. Cost and perception impacts will likely be worse the longer that the farming activities have occurred.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> • Tiered approach to ICs, involving agencies other than DOE • Deed restrictions • Property leases • Review per O&M Plan (e.g., annual parcel walkover) and/or per CERCLA 5-year review • Regulator independent authority • Ohio right of enforcement • Mound Plant O&M Plan <p>Under consideration:</p> <ul style="list-style-type: none"> • Ongoing community education (e.g., annual newspaper article) • Require more than one physical inspection per year OR conduct random site inspections to ensure that land use restrictions are maintained 	<p>Moderate.</p> <p>Minimizing the duration of exposure directly reduces severity of impact.</p>	<p>Report violation to DOJ, so that they may take action.</p> <p>Ideas for additional contingency plans:</p> <ul style="list-style-type: none"> • Evaluate the potential impact to health associated with exposure. Take appropriate action based on results • Conduct education seminar

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
20	Seeps will not be used for any purpose.	Water from the seeps is used for drinking.	<p>Low</p> <p><u>Rationale:</u> The seeps produce very little water; therefore, the probability of using the seeps for drinking water is incredibly low.</p>	<p>High: Health</p> <p><u>Rationale:</u> Currently, the health impacts could be high because the seep water is above MCLs.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> • Deed restrictions • City's I-2 zoning ordinance • Mound Plant O&M Plan • Mound Museum <p>Under consideration:</p> <ul style="list-style-type: none"> • Ongoing community education (e.g., annual newspaper article) 	<p>Short.</p> <p>Contamination concentrations may be above MCLs; however it is not clear if they are high enough for acute exposure risks.</p>	<p>Report violation to DOJ, so that they may take action.</p> <p>Ideas for additional contingency plans:</p> <ul style="list-style-type: none"> • Evaluate the potential impact to health associated with exposure. Take appropriate action based on results • Implement education seminar • Post signs • Fence-off seep area

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#	Expected Condition	Deviation (Risk Scenario)	Probability	Impact	Monitoring /Management Approach	Time to Respond	Contingency Plan
Section 3: Third Priority Scenarios (Level 3)							
21	Onsite Bedrock Aquifer water is not used for human consumption without approval.	The onsite Bedrock Aquifer is used for drinking water without approval. This activity is specifically excluded by the deed.	<p>Low.</p> <p><u>Rationale:</u> Because the bedrock aquifer produces such a small yield, the probability of using it for drinking water is very low.</p>	<p>High: Health</p> <p>The health impact could be high based on output from the risk model. (Actual health impacts would depend on the location of the well, the concentrations of contaminants in the water, the quantity of water consumed, the duration of exposure and characteristics of the receptor.) This scenario was not evaluated in the RRE.</p>	<p>Currently planned:</p> <ul style="list-style-type: none"> • Switch site to city water supply • Deed restrictions • Property leases • Review per O&M Plan (e.g., annual parcel walkover) and/or per CERCLA 5-year review • Regulator independent authority • Ohio right of enforcement • State/County well permit program • Mound O&M Plan <p>Under consideration:</p> <ul style="list-style-type: none"> • Neighborhood watch program • Geophone (acoustic monitoring) technology to monitor for well-drilling (Pilot project phase) • Ongoing community education (e.g., annual newspaper article) • Require more than one physical inspection per year OR conduct random site inspections to ensure that groundwater use restriction is maintained 	<p>Moderate.</p> <p>Minimizing duration of exposure directly reduces severity of impact. Also, perception problems will likely be worse the longer the aquifer is used for drinking.</p>	<p>Report violation to DOJ, so that they may take action</p> <p>Ideas for additional contingency plans:</p> <ul style="list-style-type: none"> • Evaluate potential impact to health associated with exposure. Take action, if necessary • Close/abandon groundwater wells • Conduct education seminar

EXHIBIT 10

(Emergency Response Action Plan)

Emergency Response Action Plan

In the event of an emergency situation on any property associated with the National Priority List (NPL) site, previously operated by the U.S. Department of Energy (DOE) in Miamisburg, Ohio, and commonly referred to as the “Mound Plant,” the below actions should be taken, in order, when a potential emergency exists. Since the DOE Mound Plant operations involved both hazardous and radioactive materials, discovered items such as a buried drum may be an indication of previously-unknown waste materials inadvertently left behind by the DOE upon completing the environmental remediation/cleanup project. Such discoveries should be treated the same as any other industrial work site throughout the United States of America (i.e., **call the local authorities** so that the site can be secured, and the appropriate investigative authorities can be mobilized in order to determine if the discovery constitutes a risk to human health or the environment).

First: For emergency notifications, dial **9-1-1** for the City of Miamisburg, Emergency Dispatch.

City police and fire protection personnel are specially-trained to safely secure the scene of an emergency (e.g., by erecting barricades) so that the scene does not pose a threat to human health or the environment. City police and fire protection personnel are also trained to request assistance from the appropriate county, regional or state response organizations, such as the Ohio EPA’s 1-800 # for spill response.

Second: Notify, in order, the following two State of Ohio organizations: Ohio EPA’s 24-hour Spills Hotline at **1-800-282-9378** (based in Columbus, Ohio) **and** Ohio Department of Health at **(614) 644-2727** with “after hours” voice-activated page to Bureau Chief for Radiation Protection (based in Columbus, Ohio).

Response personnel from the State of Ohio are specially-trained to secure the scene of an emergency, including a determination of whether the scene involves radioactive contamination (which cannot be detected with the human senses, and can only be detected with special equipment). State response personnel are also trained to recognize when more specialized assistance may be warranted from the Federal government, such as the U.S. EPA or, in the case of a radiological situation, a U.S. DOE Radiological Assistance Program (RAP) team.

Third: Notify the U.S. DOE Grand Junction Office at its 24-hour toll-free number **(1-877-695-5322)**.

The U.S. DOE Grand Junction Office can help State response personnel with information and advice, to determine the need for additional resources and actions. The U.S. DOE Grand Junction Office should always be consulted before contacting additional U.S. DOE response organizations.

Fourth: *In the event that radiological contaminants are present*, notify the U.S. DOE Radiological Assistance Program (RAP), Region 5 office in Chicago, Illinois, at **(630) 252-4800**.

The Region 5 RAP office is responsible for radiological emergency response situations in both Ohio and Illinois, and is the closest RAP office to the city of Miamisburg, Ohio.

EXHIBIT 11

(Ohio EPA and ODH Protocol for Request to Remove Soil)

EXHIBIT 12

(USEPA and Ohio EPA Protocol for Request to Use Groundwater)

EXHIBIT 13

(Options to provide additional “layering” of Institutional Controls)

Options to provide additional “layering” of Institutional Controls

USDOE Grand Junction Office on City of Miamisburg’s mailing list for public meetings on zoning changes

USDOE notice on Institutional Controls (IC) in City of Miamisburg Income Tax Bill(s)

USDOE Grand Junction Office briefs Miamisburg City Council after performing review of effectiveness of ICs

USDOE Grand Junction Office 24-hour toll-free phone number

USDOE agreement with U.S. Postal Service or private mail-carrier to monitor compliance with IC

USDOE “regional” office to oversee all LTS sites in State of Ohio

Ohio Department of Natural Resources, Division of Water, database of Water Well Log Reports

Ohio EPA, Division of Drinking and Groundwater, regulation of public drinking water wells serving 25 people for more than 60 days a year

Montgomery County Combined Health District regulation of private water systems

City of Miamisburg’s Comprehensive Land Use Plan

City of Miamisburg I-2 General Industrial District zoning

City of Miamisburg Application and Permit for Street Opening

City of Miamisburg Building Permit Application

City of Miamisburg Application for Certificate of Occupancy

City of Miamisburg Overlay Zone for the 1998 Mound Plant Property

City of Miamisburg Planned Development for the 1998 Mound Plant Property

City of Miamisburg Plat for the 1998 Mound Plant Property

Mound Reuse Committee (MRC) Interim Land Use Policy

MMCIC’s Comprehensive Reuse Plan (CRP)

MMCIC Lease documents include deed restrictions

MMCIC “Soil Management Plan” for MATC tenants

MMCIC Security Program for MATC tenants (e.g., guards, fences, signs, video surveillance)

“Neighborhood Watch” Program at MATC site

1-800 “Call Before You Dig” Program

Mound Museum Association houses the CERCLA Administrative Record

EXHIBIT 14

(Excerpts from Ohio Department of Natural Resources [ODNR] website)

EXHIBIT 15

(Ohio EPA regulation of public drinking water wells
serving 25 people for more than 60 days out of the year)

EXHIBIT 16

(Ohio Department of Health [ODH] Application/Permit for Private Water System)

EXHIBIT 17

(City of Miamisburg Application and Permit for Street Opening)

EXHIBIT 18

(City of Miamisburg Building Permit Application)

EXHIBIT 19

(City of Miamisburg Certificate of Occupancy)

CITY OF MIAMISBURG

BUILDINGS

CERTIFICATE NO. _____

CERTIFICATE OF OCCUPANCY

This is to certify that _____ has made application on the _____ day of _____, 20____, to the Chief Building Official of Miamisburg, Ohio, for a Certificate of Occupancy for the building located at _____

If such building conforms in all respects to the laws of the State of Ohio and the Ordinances of the City of Miamisburg, Ohio, then the use or occupancy of the building for the purpose of _____ is permissible under the provisions of Ordinance No. 2712 of the City of Miamisburg, Ohio.

Maximum occupancy of this building is _____.

Bldg. Permit # _____

Approved: _____

Fire Suppression Information:

1. Sprinkler System Provided _____
2. Hazard Classification _____
3. System Demand at Riser _____

Fire Department _____

Building Inspector _____

Engineering Department _____

Live Load _____

Type Construction _____

Zoning _____

Use Group _____

In accordance with the provisions of the Ohio Basic Building Code 1998 Edition.

EXHIBIT 20

(User Groups of LTS Information/Data)

EXHIBIT 21

(Possible Information Management System elements)

Possible Information Management System elements

Establish or continue an entity (e.g., PCSWG, MRC, MMCIC) which will convene on a scheduled basis, for example, to discuss issues with the site (e.g., updates to the LTS Plan, results of integrated groundwater monitoring program).

Justification of development – review of:

- residual risk and data needs assessments;

- sociological, economic development, cultural value and importance of Long-Term stewardship to community;

- “ensure the legacy of the site” issues; and

- definitions of responsible long-term stewardship.

Development of funding models for LTS information management strategy (IMS):

- involvement of City, County, State, National agencies- development of five year strategic plans to sustain funding

Funding needs:

- development of IMS Design;

- IMS Implementation; and

- strategy oversight and maintenance (who and what organizations bear what responsibilities?).

IMS Design including:

- historical information on People, Environment and Technology (PET);

- current information on PET; and

- future information on PET.

Public education information on past, present and future of Mound site in Miamisburg:

- presented by Mound Museum Association, and Web Site for general public use.

Historical, current and future PET information includes:

- information Gathering Techniques;

- technology needs/requirements;

- institutional controls;

- information Storage and Retrieval Plan;

- electronic; CERCLA Reading Room, Web site, Mound Museum oversight/administration; and

- curatorial oversight of electronic and artifacts.

Advertisement/announcement in the local paper.

Some form of media to target the businesses and Realtors who will be selling/using the 1998 Mound Plant Property.

Some form of media to target people as well as locations where people go to research financing or investing in property.

Create a notification process for when there is change in the local city government, i.e., mayor, city manager, city council, etc. For example, when there is a change in personnel in the local government, the new official would be notified of the history, deed restrictions, etc.

Web site with 24 hour 1-800 toll-free numbers for emergencies.

Make the name of the industrial park reflect the history of the site.

Have the city notify the agencies (DOE, USEPA, OEPA and ODH) when some kind of permit has been applied for at the city.

Not only include zoning consistent with the deed restrictions, but include why the restrictions are needed and the history.

Roll the CERCLA reading material into the Mound Museum Association's display area.

Public meeting to present the results of the annual (or five-year) reviews. Place notification in the local newspaper along with an article discussing meeting.

Use the Experi-Center and/or Miamisburg schools to provide LTS education to students. Make it a part of in-school curriculum.

Use an existing event with an anniversary date (Veteran's Day, Birth of the Atomic Bomb, Miamisburg Community Days, Miamisburg Historical Society event, Earth Day, etc.) to provide information to the community.

EXHIBIT 22

(Excerpt from DOE Ohio Field Office “Records Management Program,
A Management Guide” [dated March 2001])

EXHIBIT 23

(MOA between DOE and Advisory Council on Historic Places,
dated October 17, 2000)

EXHIBIT 24

(Executive Summary and Section 2 [Cultural Resource Management Goals]
of the MCP “Cultural Resource Management Plan”)

EXHIBIT 25

(Site Transition Framework [July 1, 2002, Revision 1 DRAFT])

PREFACE TO THE SITE TRANSITION FRAMEWORK FOR LONG-TERM STEWARDSHIP

This document provides a framework for the transition of a site or portions of a site from cleanup to long term stewardship. The framework is a tool to help facilitate a smooth transition from remediation into long-term stewardship, and provides a checklist approach for affected parties. The goal is to ensure that nothing in the closeout process has been overlooked and that appropriate actions have been completed prior to a site's transfer into long-term stewardship.

This framework identifies specific information and data requirements; however, it is only a framework, and should be adapted to accommodate unique site-specific requirements, needs, and documents. Exceptions to the framework are expected and should be worked out on a site basis by the affected and responsible parties. Ideally, this framework should be used as early in the remediation process as possible. Subsequent reviews should be conducted and used to verify that all appropriate steps have been, or will be taken, to close out the site and prepare it for long-term stewardship.

This document does not, in any way, serve as a replacement for, or alternative to, the required regulatory processes. This framework is not intended to impose additional requirements on the owners or operators of the sites. Furthermore, it should not be interpreted as a land transfer mechanism.

The Department of Energy is applying the draft framework on an informal basis to a variety of sites that are scheduled to transition from closure to long-term stewardship (e.g., a FUSRAP site, a UMTRCA Title II site, the Weldon Spring and other closure sites, and continuing mission sites). Upon approval, the intention is to apply the framework on a more systematic basis.

SITE TRANSITION FRAMEWORK FOR LONG-TERM STEWARDSHIP

I. Authority and Accountability are Assigned and Documented:

- This section reviews the assignment of accountability and authority for responsible and affected parties for long-term stewardship.
- A. All documents allocating the roles and responsibilities of responsible and affected parties have been approved and signed (e.g., Memorandum of Agreement, Memorandum of Understanding, or Interagency Agreement, Cooperative Agreement).
- B. Each federal or non-federal entity who will be responsible for long-term stewardship activities listed in section I(A) have been identified. Funding sources for each activity have been identified.
- C. Appropriate governmental policies and procedures for managing resources are incorporated into the long-term stewardship plan and agreements.
- D. The legal authority under which long-term stewardship will be conducted has been identified and documented.
- E. Authorities relating to Institutional Controls are discussed in paragraph IV.

II. Site Conditions are Accurately and Comprehensively Documented:

- All documentation identifying site historical uses, characterization, and remedial action, including the Preliminary and Final Closeout Reports have been completed and made available to the public.
- A. The site at the time of closure, including all remedies and remaining hazards, has been described. Examples include:
 1. Physical features of the site, including, site topography, geology, hydrogeology, site and area boundaries, etc.
 2. Locations of active, inactive, and decommissioned buildings, structures, and surface and subsurface infrastructure (e.g., utilities).
 3. Locations of residual hazards and associated engineered and institutional control systems.
 4. Locations of groundwater wells, wastewater outfalls, and air quality monitoring stations. Information has been depicted on-site maps.
 5. For those sites undergoing closure, locations of off-site buildings and structures, important ecological resources, and associated potential receptors in the vicinity of the site.
 6. Characteristics of the remaining contaminants (e.g., radioisotope, activity, and physical form).
 7. If a "No Further Action" has been reached and agreed to, this should also be indicated.
- B. For those sites undergoing closure, a conceptual site model for long-term stewardship has been completed, showing the relationships between existing residual hazards, environmental transport mechanisms, exposure pathways, and human/ecological receptors.
- C. All remedial action documentation has been completed and approved by regulators.

- D. Results of any Natural Resource Damage Assessment, where applicable, performed with associated documentation has been made available. This assessment should discuss the parties' potential environmental liability at the site.

III. Engineered Controls, Operation & Maintenance Requirements, and Emergency/Contingency Planning are Documented:

- A. Engineered controls have been identified and documented, information should include:
1. Design and construction drawings, specifications, and completion report.
 2. Site physical and geotechnical data.
 3. Locations of engineered controls accurately identified and depicted on site maps.
 4. Identification of on-going remediation and related waste management activities.
 5. Performance history assessments indicating successful operation.
 6. A life-cycle cost estimate, including basis and assumptions. The life-cycle cost estimate should be based on best available data, recognizing that in most cases the long-term stewardship activities may be on-going for decades.
 7. A master schedule of on-going activities has been made available, including exit criteria outlining when engineered controls are no longer necessary.
- B. Operation & Maintenance (O&M) activities have been documented, funding is in place, and a party has been selected to perform the necessary activities.
1. Surveillance and monitoring requirements have been documented (e.g., scope frequency, reporting, process descriptions, and analytical parameters & methods). This document should allow for changes that are consistent with the selected remedy.
 2. The cost, including basis and assumptions, of operations, maintenance and surveillance activities have been determined and documented. The request for funding should be in accordance with applicable budget appropriations procedures.
 3. An agreement is in place for performance of all O&M activities.
- C. Emergency/Contingency planning and the authority and responsibilities to implement have been identified.
1. Uncertainties associated with residual hazards, fate and transport mechanisms, exposure pathways, and the effectiveness of long-term stewardship activities have been identified.
 2. Scenarios related to each uncertainty have been identified (e.g., failure scenarios).
 3. Roles, responsibilities, and procedures to respond to each scenario have been established.

IV. Institutional Controls and Enforcement Authorities are Identified:

- A. Land Use/Institutional Controls have been implemented and approved by the regulator. All institutional control components of each implemented remedy are described (e.g., future lands use assumptions upon which each implemented remedy is based, associated land use restrictions).
1. On-site and off-site land uses for each area (property) and its associated land use assumptions have been identified.
 2. Procedures for managing, assessing potential changes, and enforcing on-site and off-site (as appropriate) land uses have been documented and are being conducted.

3. Institutional controls established as part of an implemented remedy have been identified.
4. Roles and responsibilities have been outlined for responding to requests to change existing land uses.
5. Procedures have been put in place for periodic review of land uses. Performance history indicating successful operation has been provided.
6. Procedures for management and periodic reassessment of institutional control restrictions are in place.
7. Off-site easements implemented to ensure the protectiveness of the remedy have been documented.
8. Exit criteria outlining when engineered controls are no longer necessary has been documented.

B. Property records (as required by applicable regulations and/or guidance).

1. The site's real estate history has been documented, including identification of former property owners, deed restrictions, or other land use restrictions.
2. Site boundaries and site markers are easily identified and documented.
3. On-site and off-site easements, rights of way, and other property access rights have been established and documented.
4. Water, mineral, and other natural resource rights have been identified.
5. Tribal treaty rights and other U.S. Government obligations have been identified.
6. Areas where long-term stewardship activities will be conducted have been documented in the property records.

V. **Regulatory Requirements and Authorities are Identified:**

- Regulatory requirements regarding residual contamination have been identified. All regulatory documents are maintained and available to the public (e.g., Records of Decision, RCRA Permits and Corrective Action Decisions, Consent Orders, Interagency Agreements, Federal Facility Agreements).
- A. Regulatory decision documents and associated site characterizations have been identified and are either complete or scheduled for completion and are maintained in accordance with regulatory requirements.
 - B. The implemented remedy and associated long-term stewardship activities are certified to be in compliance with all regulatory requirements (e.g., appropriate agreements have been entered into with appropriate regulator).
 - C. Five-Year Review results have been made available. Future five-year reviews, including supplemental analysis of site-wide Environmental Impact Statements, should be planned and consistent with EPA guidance.
 - D. EPA NPL Status and/or RCRA permit status have been clearly indicated (e.g., de-listing, partial de-listing, non-NPL).
 - E. NRC License Status has been established. This should identify the license holder and the development of license transfer plans.
 - F. Locations of documents have been identified and are accessible.

VI. Long-Term Stewardship Budget, Funding, and Personnel Requirements are Identified:

- A. A technical baseline document for long-term stewardship programs and activities at the site has been developed.
- B. Funding (consistent with technical baseline).
 - 1. Funds for long-term surveillance and maintenance have been identified and are available or requested.
 - 2. Estimates for the annual funding requirements for long-term stewardship activities, associated oversight, and information management requirements have been derived.
 - 3. Funding assurances have been made based on those estimates.
 - 4. Mechanisms to transfer funds required for long-term stewardship have been established.
 - 5. Funding mechanisms for long-term stewardship activities and regulatory oversight activities conducted by other federal and non-federal entities have been established (e.g., documentation of financial assurance agreements for long-term monitoring and surveillance funding).
 - 6. Estimates required for financial assurance payments have been determined.
 - 7. Authority has been granted to the steward to use, or have access to, funds related to long-term stewardship.
- C. Personnel requirements have been identified (for activities not previously addressed within this set of criteria).
 - 1. Personnel functions and qualifications necessary for the technical implementation and administration of long-term stewardship activities have been identified.
 - 2. A determination for the need of other on-site personnel has been made identifying the specific duties that may be required.
 - 3. A closeout plan for the disposition of excess federal full time equivalents has been developed.
- D. A business close out process has been developed.

VII. Information and Records Management Requirements are Satisfied:

- A. The Transfer of Information.
 - 1. Information needed for long-term stewardship has been identified and transferred.
 - 2. Practices and procedures for the collection, evaluation, storage, retrieval, and use of this information have been established (e.g., evaluation of new technologies).
 - 3. Location for storage of information has been identified. Where the information will be placed has occurred.
- B. Information management planning has been performed and is acceptable to the stakeholders.
 - 1. Systems and procedures for the transfer of archival long-term stewardship information in one or more on-site or off-site repositories have been developed.
 - 2. Retention schedules that are appropriate for the management of information for long-term stewardship have been determined.

3. Systems and procedures to establish and facilitate public access to and retrieval of information critical to long-term stewardship are in place. Examples could include, but are not limited to, internet access, local library, on-site information center (e.g., Interpretive Center, Museum, etc.), etc.
4. Classes of LTS information users have been identified and the retention and retrieveability requirements identified and implemented.

VIII. Public Education, Outreach, Information and Notice Requirements are Documented and Satisfied:

- A. List of site stakeholders with associated address information has been developed and updated.
- B. Community involvement tools have been developed and are being used at regular intervals (e.g., fact sheets, newsletters, inspection reports, 5-year review results, email notifications, public meetings, etc.).
- C. Costs associated with public involvement have been estimated (e.g., Oversight Committees, meeting locations, etc.). Where approved, any such cost would be included in the funding requests.
- D. Updates of the administrative record/information repository on-site are annually (at a minimum) made available to interested parties.

IX. Natural, Cultural and Historical Resource Management Requirements are Satisfied:

- A. A discrete system or process is in place to protect information about sensitive and natural resources.
- B. Biological resources, threatened and endangered species, archeological and cultural resources, Native American treaty rights, and/or other natural and cultural resource issues have been addressed.
- C. Locations and characteristics of natural and cultural resources, needing long-term stewardship, have been identified (e.g., precise locations of cultural and natural resources). A management system is in place and operating successfully.